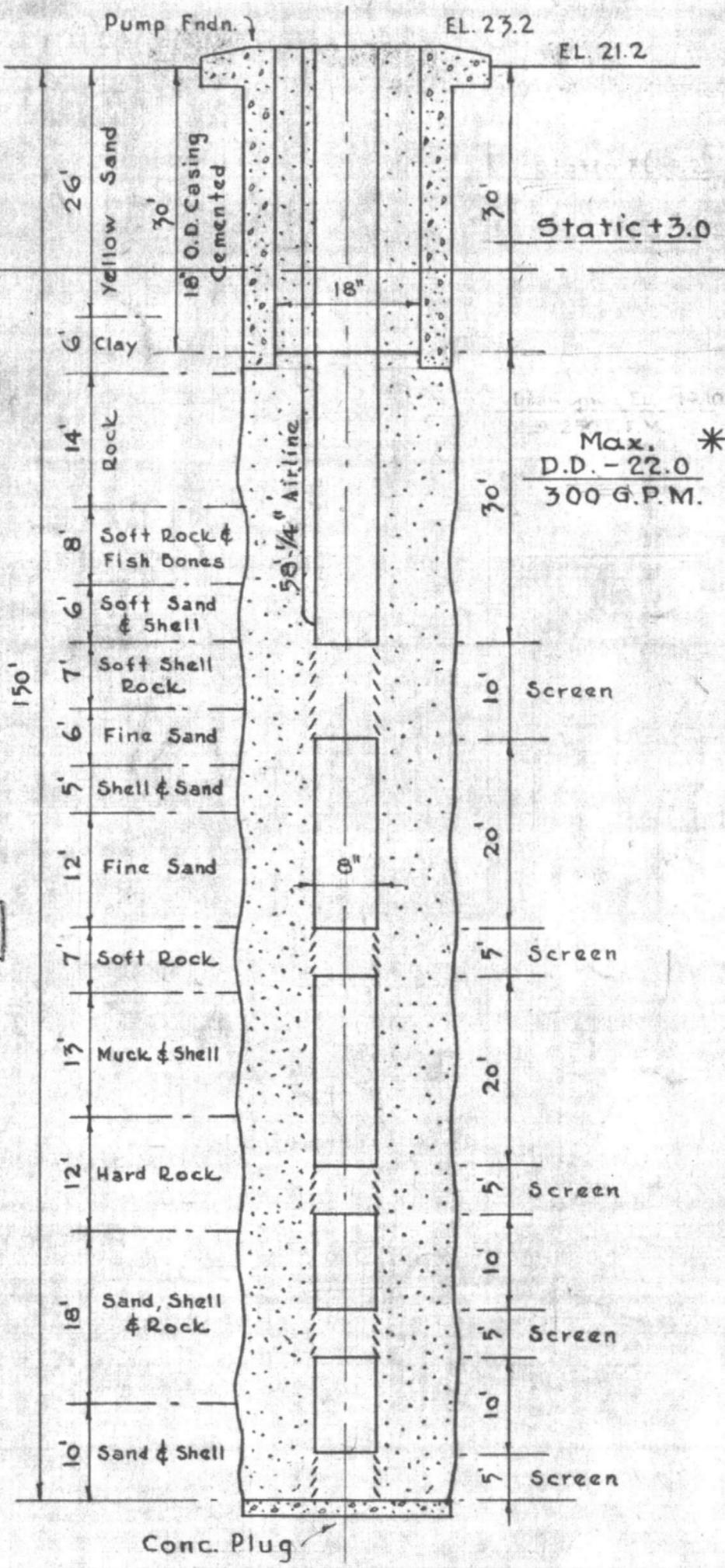
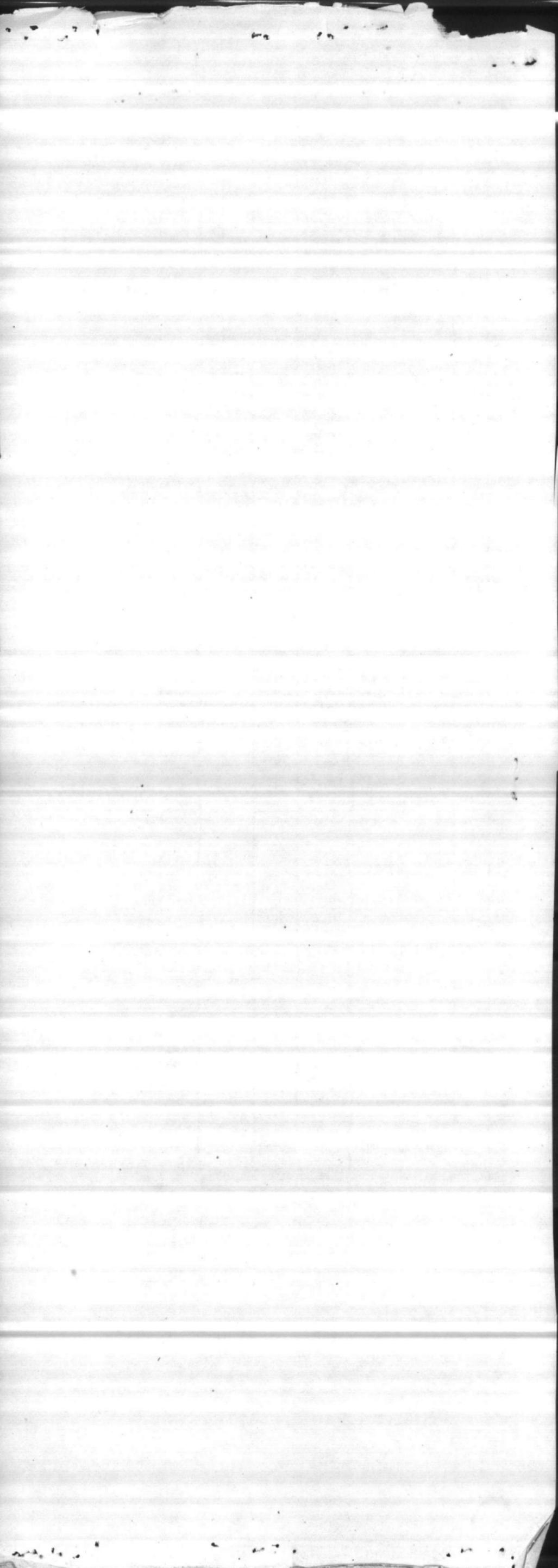


P.M. DUAL DRIVE - 10 H.P.

228 " " actual. D.D. - 14.4

242 " " " " D.D. - 15.9





Frazelle WS14 Byron M

From: Brewer GS14 Scott A
Sent: Monday, January 22, 2001 1:25 PM
To: Cone GM14 Frederick E; Baker GM13 Carl H; Raines GS12 Rick H; Paul GS13 Neal N
Cc: Phillips Col Thomas S; Frazelle WS14 Byron M; Nicholson LtCol David L; Gwynn GM13 Sammy D
Subject: RE: Production Well 613

Fred- Thanks for the response. Neal will continue to work this issue with all concerned, such that interim measures are identified/implemented and so all the pieces to the final solution(s) are identified with projects/deadlines. V/r sab

-----Original Message-----

From: Cone GM14 Frederick E
Sent: Monday, January 22, 2001 12:04 PM
To: Baker GM13 Carl H; Brewer GS14 Scott A; Raines GS12 Rick H
Cc: Phillips Col Thomas S; Frazelle WS14 Byron M; Nicholson LtCol David L
Subject: RE: Production Well 613

SCOTT/RICK-
WE CONCUR THAT THE BEST APPROACH IS TO REPLACE WELL 613 AS SOON AS POSSIBLE.
RECOMMEND WE DETERMINE THE BEST, MOST TIMELY METHOD OF ACCOMPLISHING THIS (PROBABLY A SUPPLEMENTAL M2 PROJECT). ALSO, WE NEED TO DECIDE HOW QUICKLY WE NEED TO SHUT DOWN THE WELL.
FRED

-----Original Message-----

From: Baker GM13 Carl H
Sent: Monday, January 22, 2001 11:42 AM
To: Cone GM14 Frederick E
Cc: Phillips Col Thomas S; Frazelle WS14 Byron M; Nicholson LtCol David L
Subject: RE: Production Well 613

Fred,

I recommend that the well be closed and a replacement well programmed as an environmental project. In the past, wells have been secured due to close proximity of IR sites, and replacement wells approved. 613 is one of the base's original wells and certainly has exceeded it's life expectancy.

V/R,

Carl

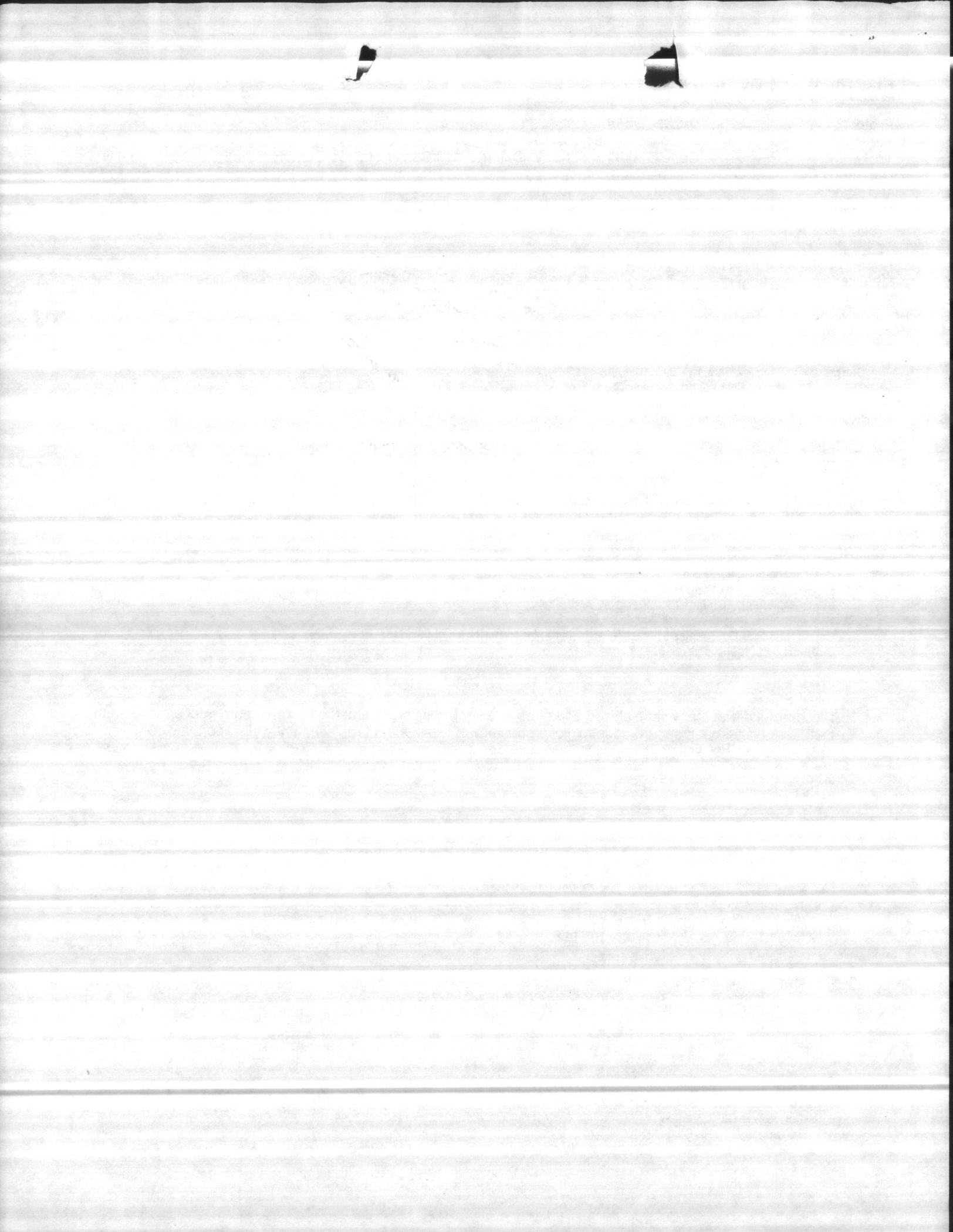
-----Original Message-----

From: Cone GM14 Frederick E
Sent: Monday, January 22, 2001 11:29 AM
To: Baker GM13 Carl H
Cc: Phillips Col Thomas S; Frazelle WS14 Byron M
Subject: FW: Production Well 613

CARL-
NEED YOUR THOUGHTS.
I TEND TO AGREE WITH RICK'S RECOMMENDATION.
FRED

-----Original Message-----

From: Raines GS12 Rick H
Sent: Monday, January 22, 2001 10:44 AM
To: Brewer GS14 Scott A; Paul GS13 Neal N; Burton GS07 Thomas H; Cone GM14 Frederick E; Frazelle WS14 Byron M
Cc: Rowse GS12 Brent W
Subject: Production Well 613



Gentlemen,

A situation has come up that needs to be addressed as to how we will proceed.

IR Site 3 is the old creosote plant at the corner of Holcomb Blvd and Sawmill Rd. The site had soil and groundwater contamination associated with it. A recent remedial action was successful in removing the soil contamination but there is still groundwater contamination present beneath the site. The ROD for this site calls for us to monitor the groundwater until we can show that Natural Attenuation has remediated the groundwater. This will take a number of years, possible 5-10. The LUCIP for this site calls for a restriction on the aquifer use that includes not using the water within 1000 feet of the site for potable water. Production well 613 is within that 1000 foot buffer and is hydraulically down gradient of the site, so there is the potential for the contaminants to migrate into the well.

Recent discussions with the State and Federal regulators pertaining to this situation have led to a couple of potential courses of action. One solution is to close well 613. Another option is to construct a sentinel well. The well would be installed between the site and well 613 to the same depth as well 613 and would act as a early warning system that the contaminants are getting close to impacting well 613. Discussions with Mr. Frazelle have disclosed that the base requires the water production from well 613, so that closure of the well would require construction of a new well.

I realize that there are other considerations that have not been touched on here i.e. scheduling and locating the new well, and that are possibly other options that I'm not aware of. In today's climate though, I recommend that we shut down well 613 and use the money that we would spend on a sentinel well towards the construction of a new production well.

Once we come to a conclusion on how we will proceed, it is imperative that I promptly report back to the regulators with our proposed plan.

Please let me know if you require any additional information or if I can be of any help.

R/S

Rick Raines

451-9461



DATE 7-25-00_v

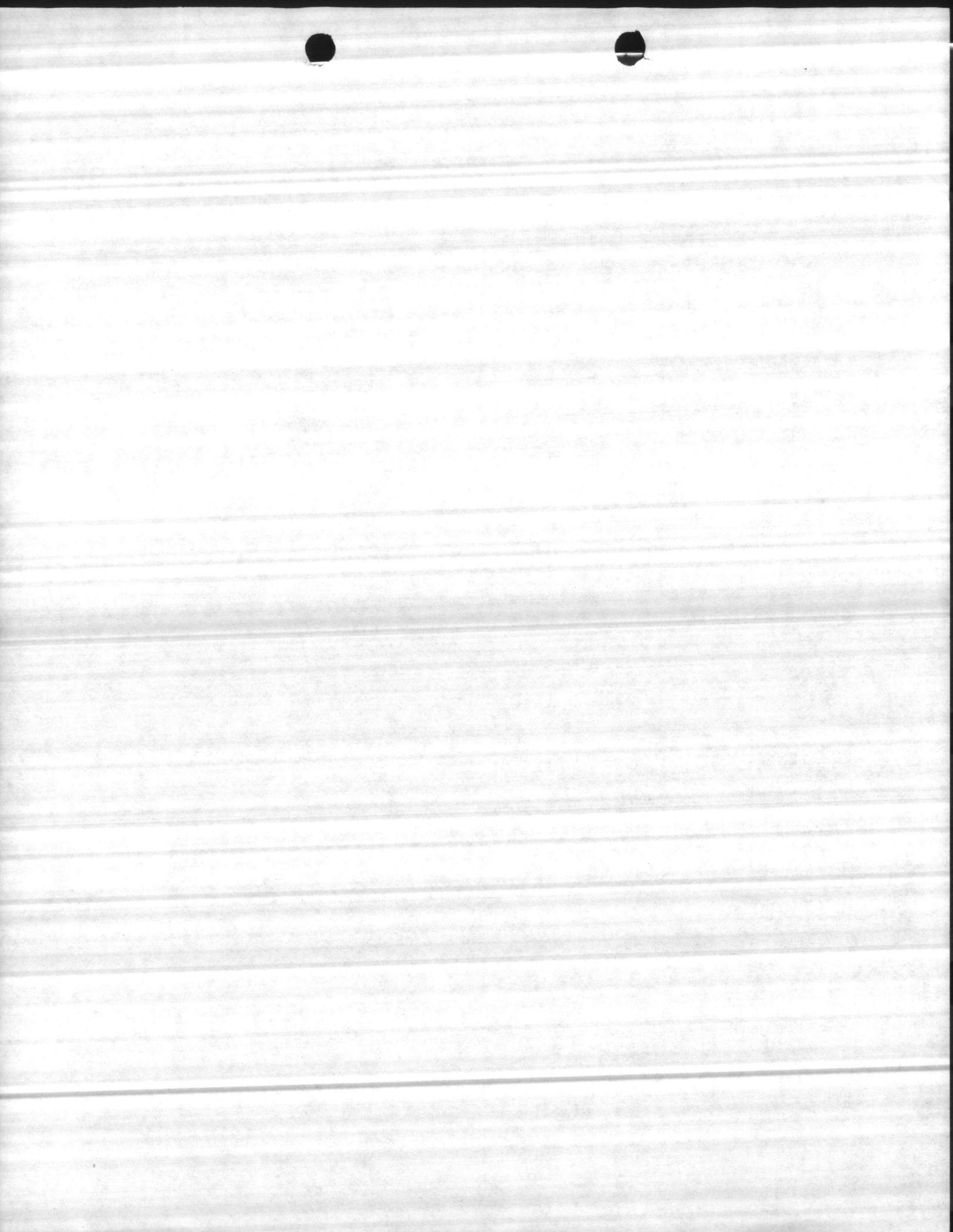
PWSID 04-67-041

WELL # HP 613₊
WELL NAME HADNOT POINT HP-20
BLDG. HP 613₊
CODE S.
AVAILABILITY P.
LOCATION HOLCOMB BLVD.

LATITUDE 34.70829_v
LONGITUDE 77.33836_v
WELL DIAMETER 8"
WELL DEPTH 150'
SCREEN INTERVAL _____

YIELD 250
STATIC LEVEL 13'
PUMPING LEVEL 60'
PUMP TYPE VERTICAL TURBINE
MOTOR HP 5
INTAKE DEPTH 50
DESIGN CAPACITY 200_x
ACTUAL GPM 250
SIZE OF CONCRETE SLAB _____

HEIGHT OF CASING 30"



North Carolina Department of Environment, Health, and Natural Resources
Division of Environmental Health, Public Water Supply Section

SOURCE INFORMATION GROUND WATER

Date Form Completed

M	M	D	D	Y	Y
0	1	2	4	9	5

0	4	6	7	0	4	1
---	---	---	---	---	---	---

PWSID

Owner Assigned Source Code

613

Well Name (If purchase, name of system)

HADNOT POINT 613

Code

G=Ground
 W=Purchase/G
 Y=G w/direct influence
 Z=W w/direct influence

If Purchase, seller ID#

Source Begin Date

M	M	Y	Y

Source exempt—SWTR?

Y N

Direct Influence Date

M	M	D	D	Y	Y

Availability

P=Permanent
 E=Emergency
 S=Seasonal
 I=Interim
 O=Other

Location of well within the system (If purchase, location of master meter)

HOLCOMB BLVD

Latitude (N)

Deg.	Min.	Sec.
3	4	2.29

Longitude (W)

Deg.	Min.	Sec.
0	7	20.20

How Determined

G=GPS
 M=Map
 S=Surveyed

GPS Data

Q# or DOP #

No. of Sats. Locked on

(If purchase, use seller's primary source lat/long)

Vulnerable (VOCs)

Y N

Assessment Date

M	M	D	D	Y	Y

ENTRY POINT INFORMATION

Owner Assigned Entry Point Code

100

Use Code

C=Ground/Permanent
 D=Ground/non-permanent

Availability

P=Year-round
 E=Emergency
 S=Seasonal
 I=Interim
 O=Other

Entry Point Name

HOLCOMB CA HADNOT PT WTP

Location:

Well Site: Owned or controlled? (Y,N) Control Area (100' radius)? (Y,N) If no, explain:

Sources of pollution/distance: Hwy @ 75'

Surface water within 200'? (Y,N) If yes, actual distance feet If yes, bact. samples collected? (Y,N)

Adequate slope? (Y,N) Flooding? (Y,N) Maintenance: OK

Well House: Free of stored materials? (Y,N) Properly drained? (Y,N) Locked? (Y,N)

Condition of house: OK Type of freeze protection: None

Well: Diameter: 8" Type: GRAVEL PACK Yield (gpm): ~~100~~ 200 Properly sealed? (Y,N)

Properly vented? (Y,N) Casing depth 60 ft. (If unknown, put 'UNK') Well depth: 150' Meter available? (Y,N)

Concrete slab adequate? (Y,N) If no, explain: Size: 26x4

Size of blow-off: 3" (C) Sample tap: Before treatment? (Y,N) After treatment? (Y,N)

Pumps: Capacity: GPM: 200/62 HP: 5 Pump intake depth: 150 Auxiliary Power? (Y,N)

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 30" /

Storage at well site: Elev: Hydro: Ground:

If hydroautomatic, air volume control? (Y,N) Safety valves? (Y,N) Coded? (Y,N)

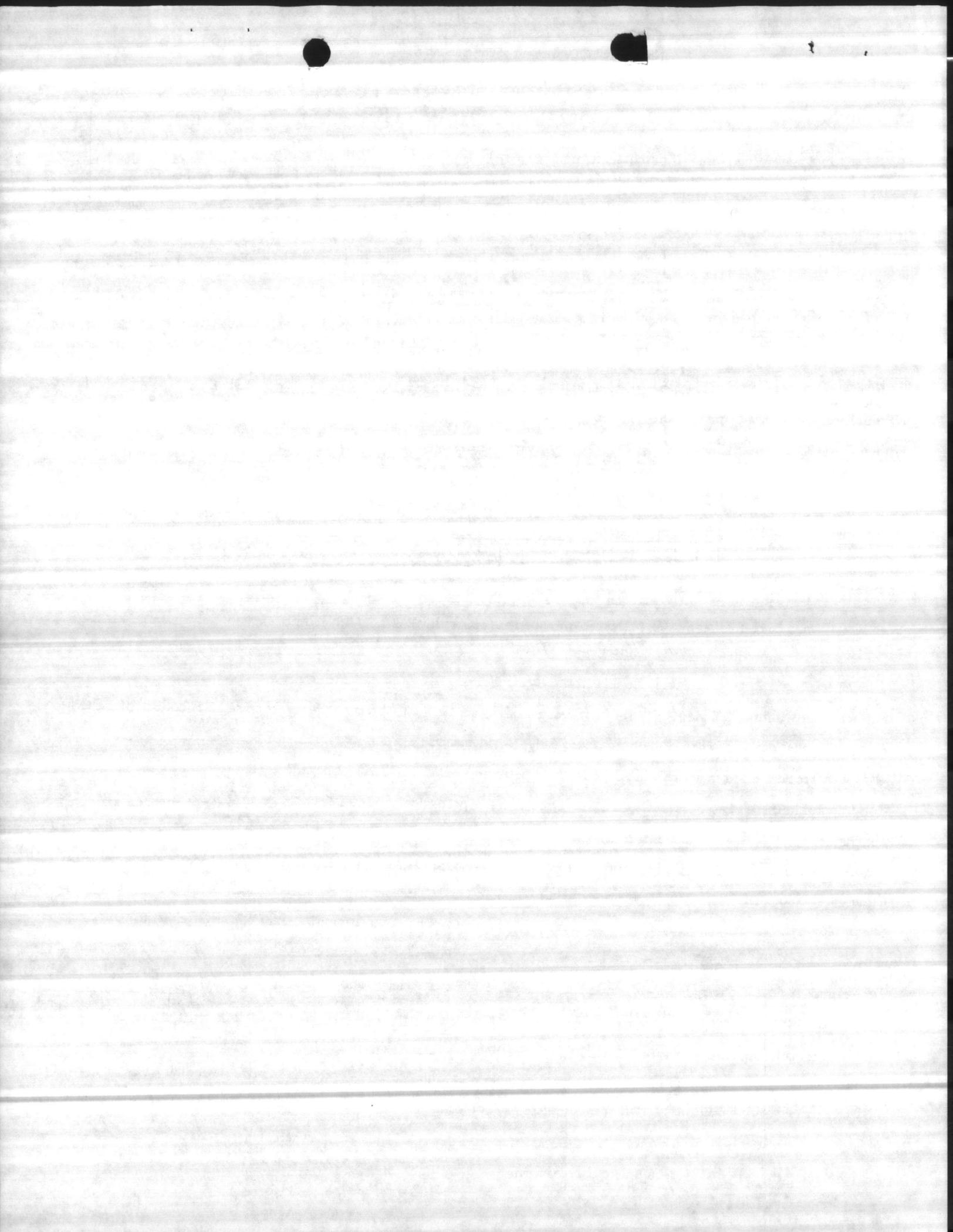
High service pumps: 1. gpm hp 2. gpm hp 3. gpm hp Auxiliary Power? (Y,N)

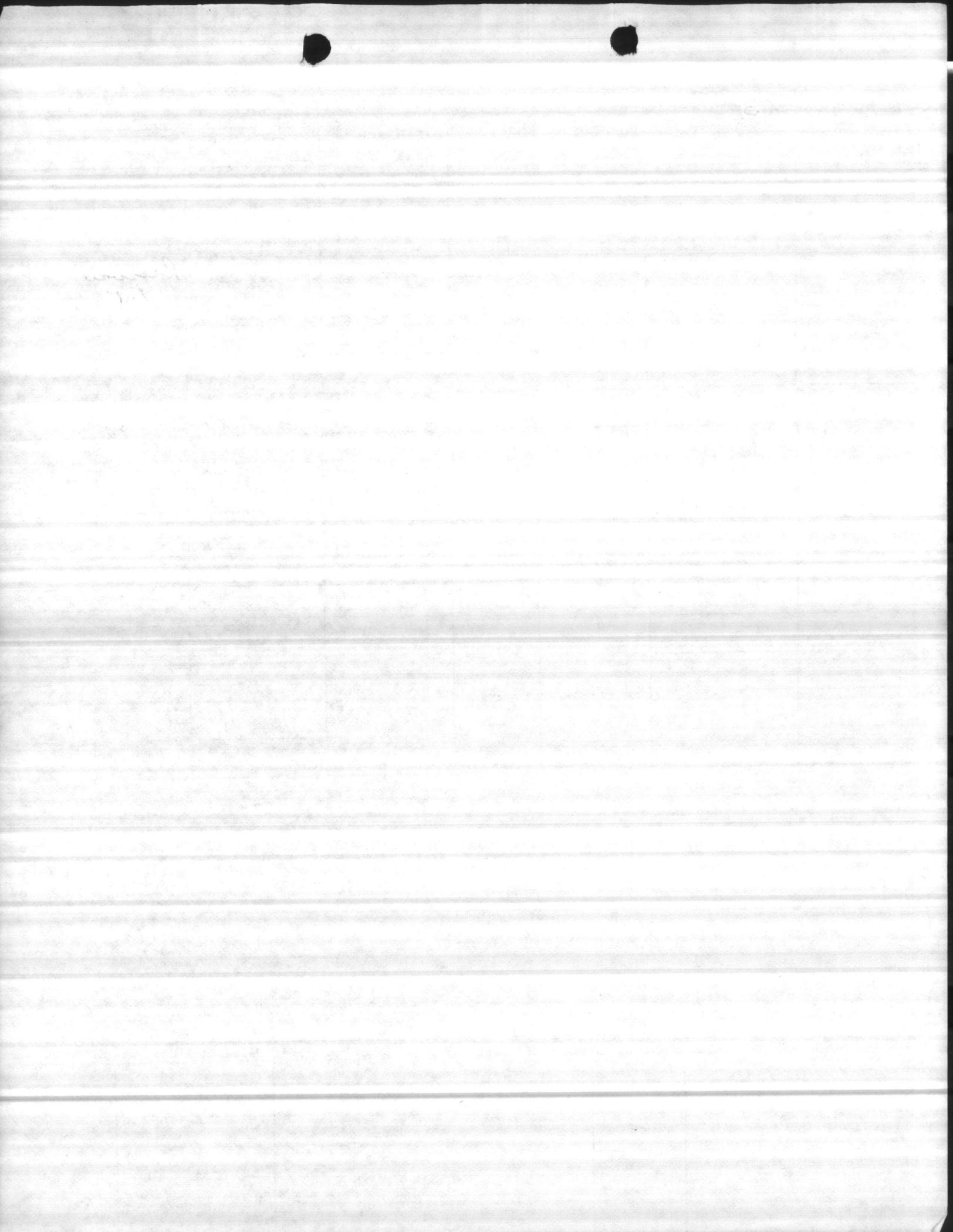
Is the water treated at this well? (Y,N) If yes, complete back of form.

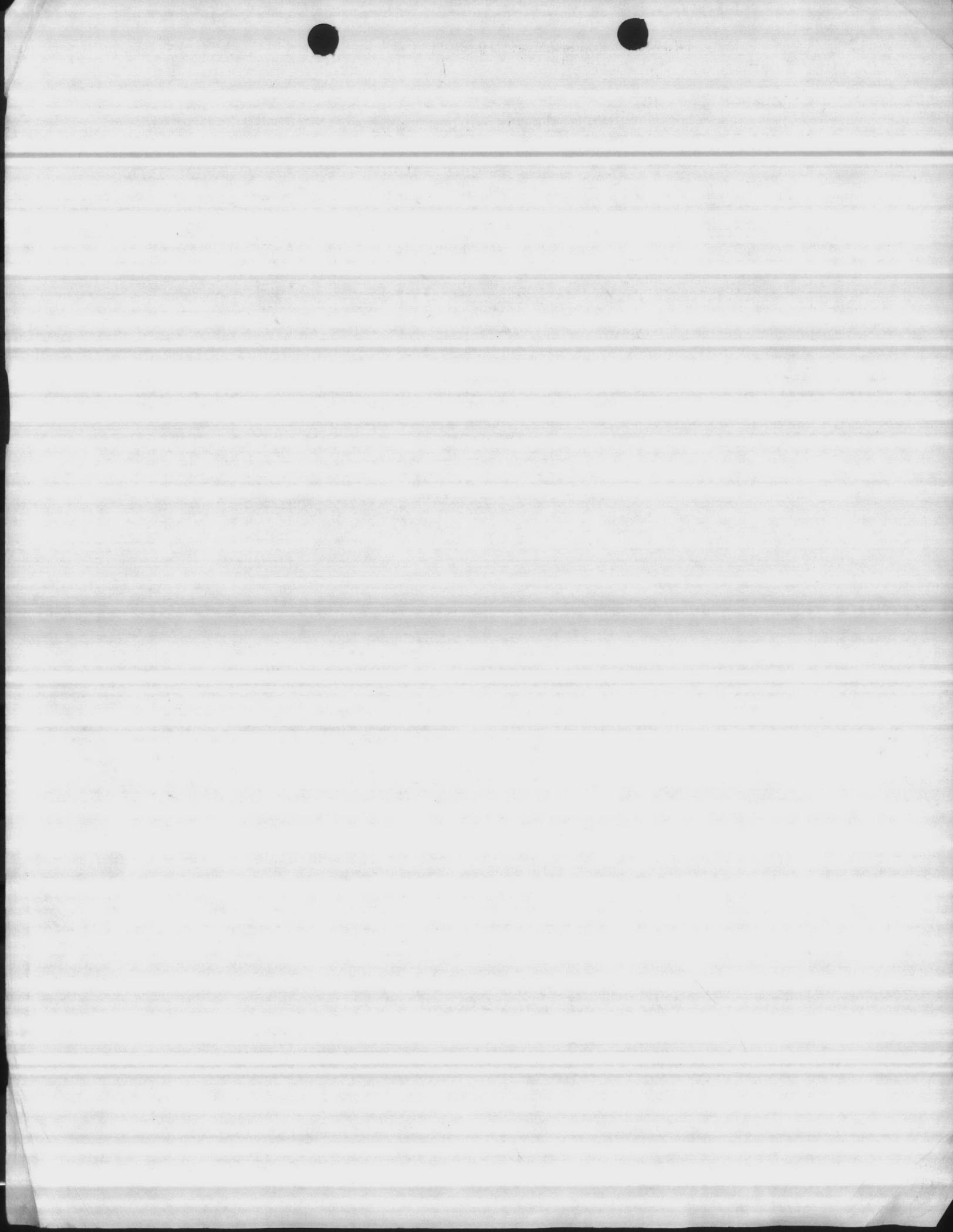
If other wells are treated here, which ones? If treated elsewhere, where? HP-20 PLANT

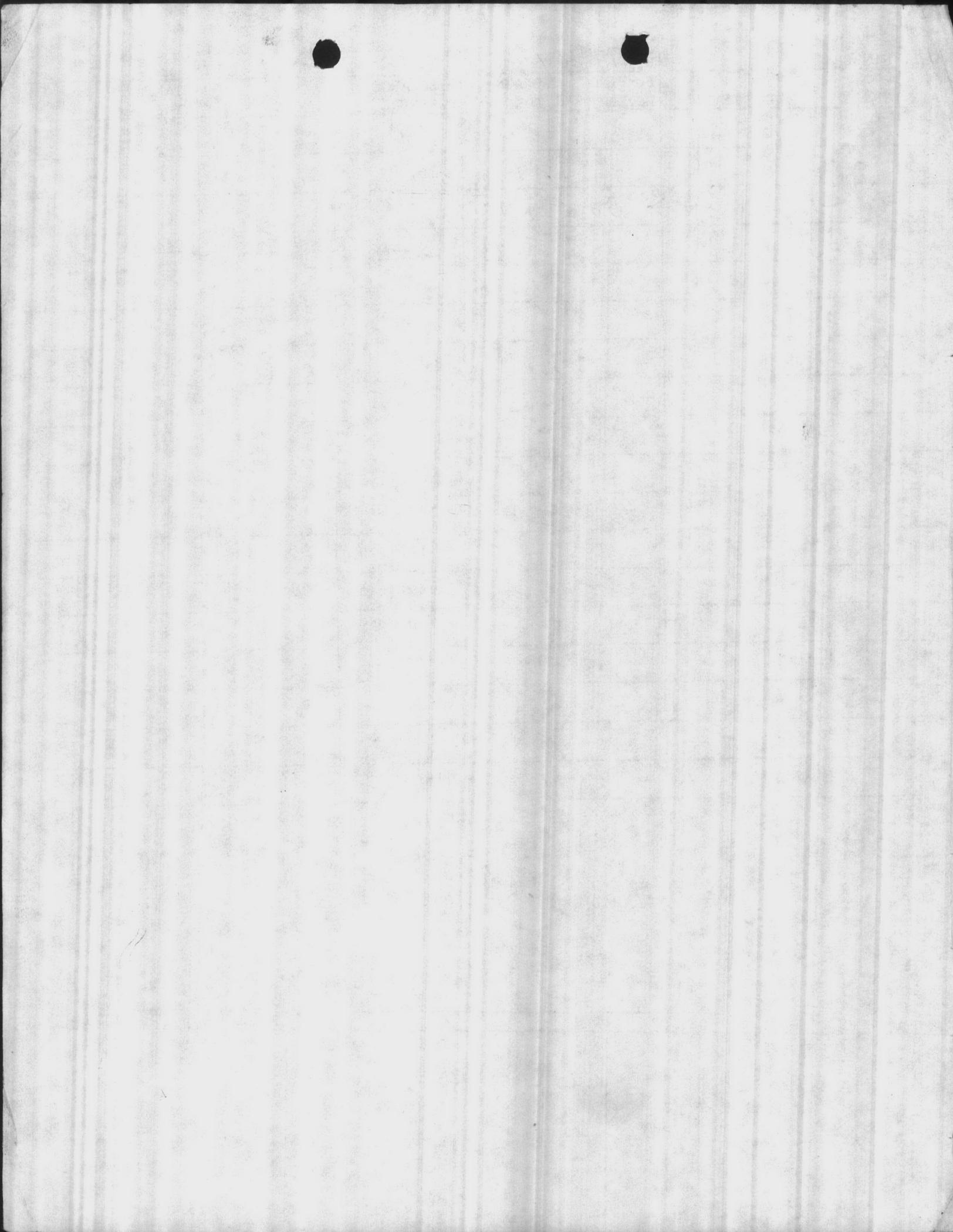
If purchase, retreat? (Y,N) If yes, complete back of form.

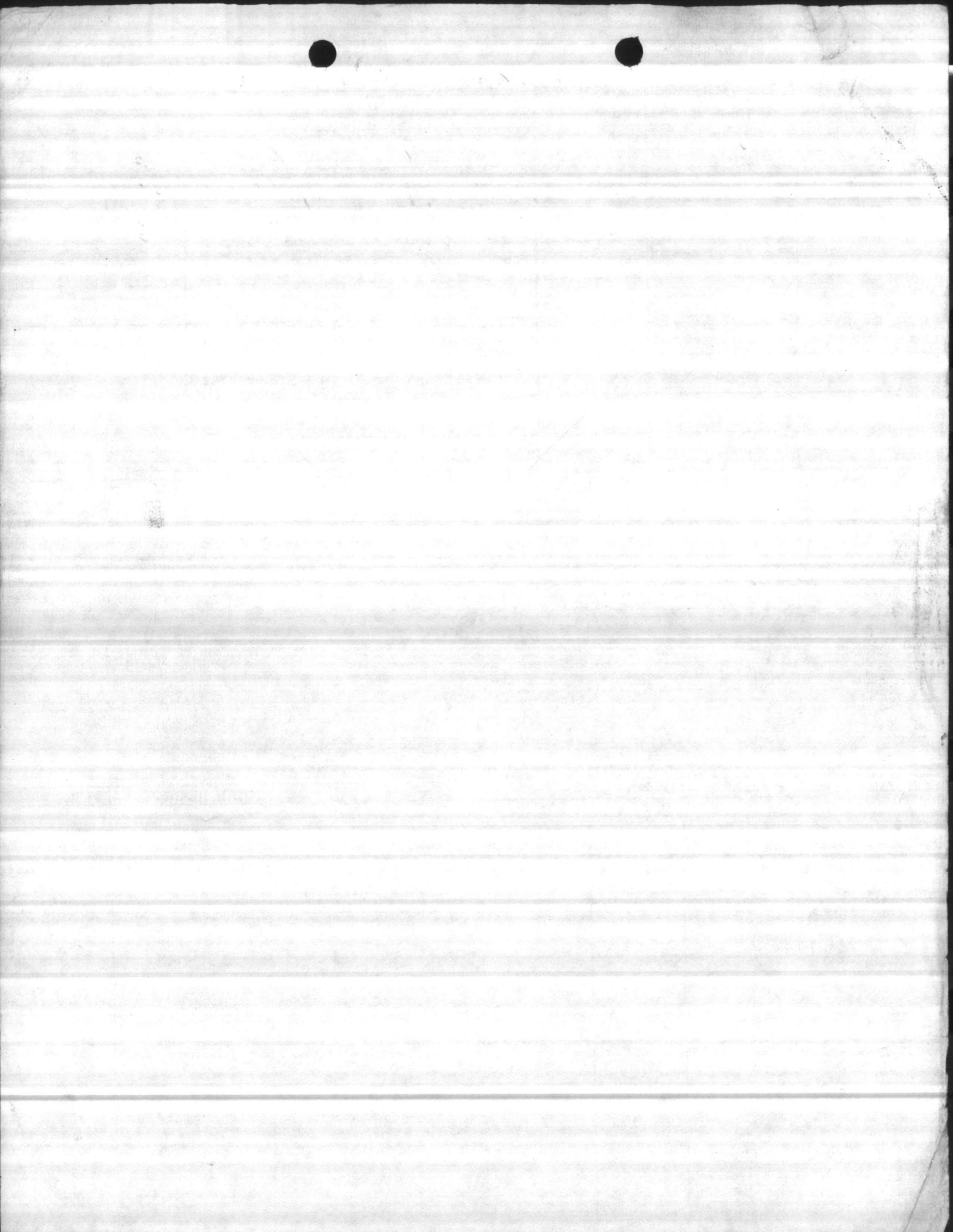
- ① Pump pedestal needs work
- ② No meter ③ No vent
- ④ Pump access hatch s/s secured

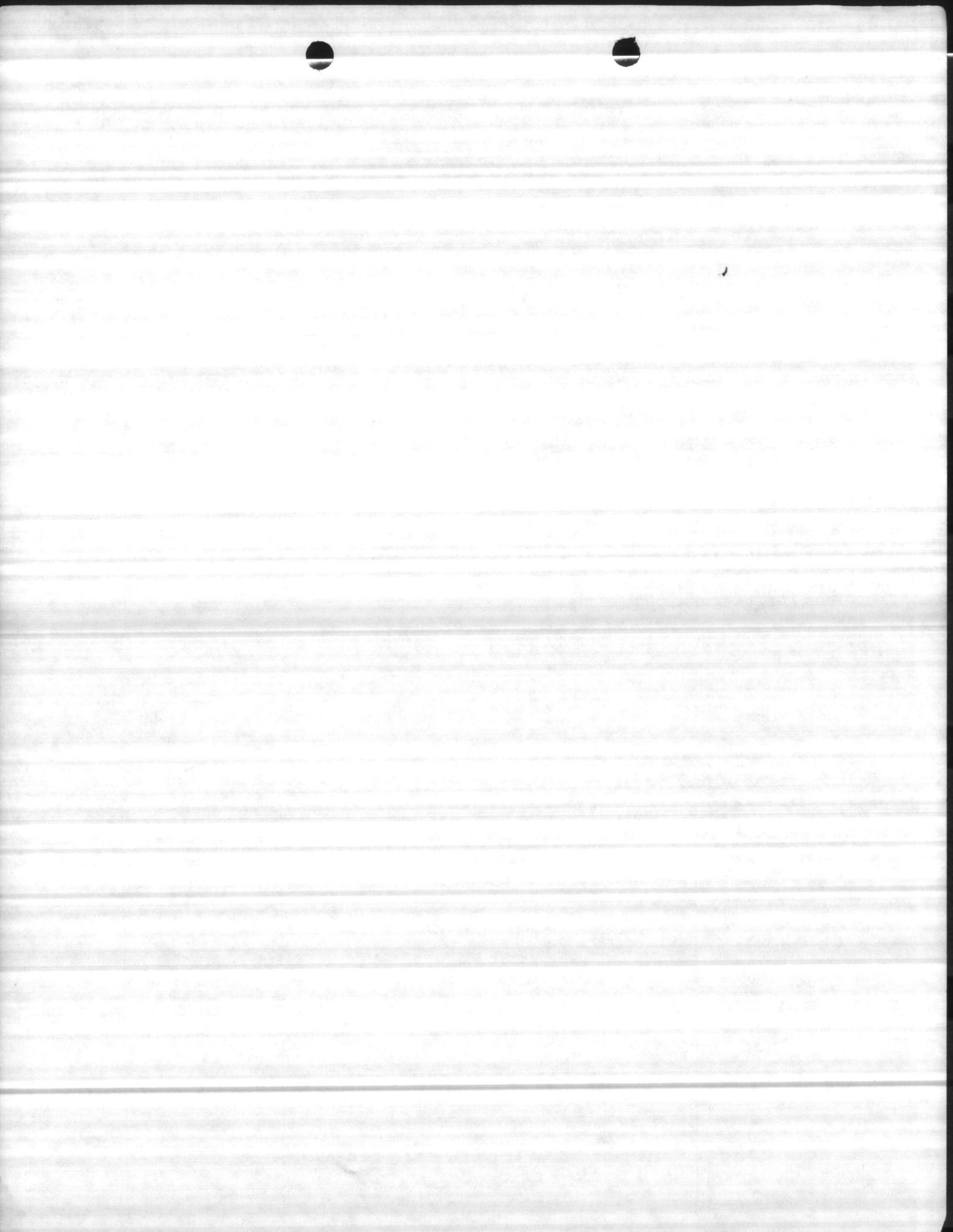












613

LENGTH
OF
AIR LINE

STATIC
LEVEL

PUMPING
LEVEL

DRAW
DOWN

DISCHARGE
PRESSURE

CAP. PER
FOOT
DRAW DOWN

TOTAL
CAP.

①

time start

11:00

9-24-82

51'

20'

33'

13'

36 LB.

104

2:15

34'

14'

33 LB.

125

11:30

37'

17'

30 LB.

137

11:45

37'

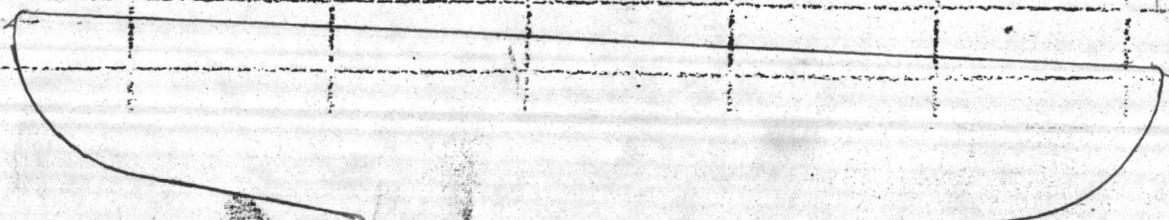
17'

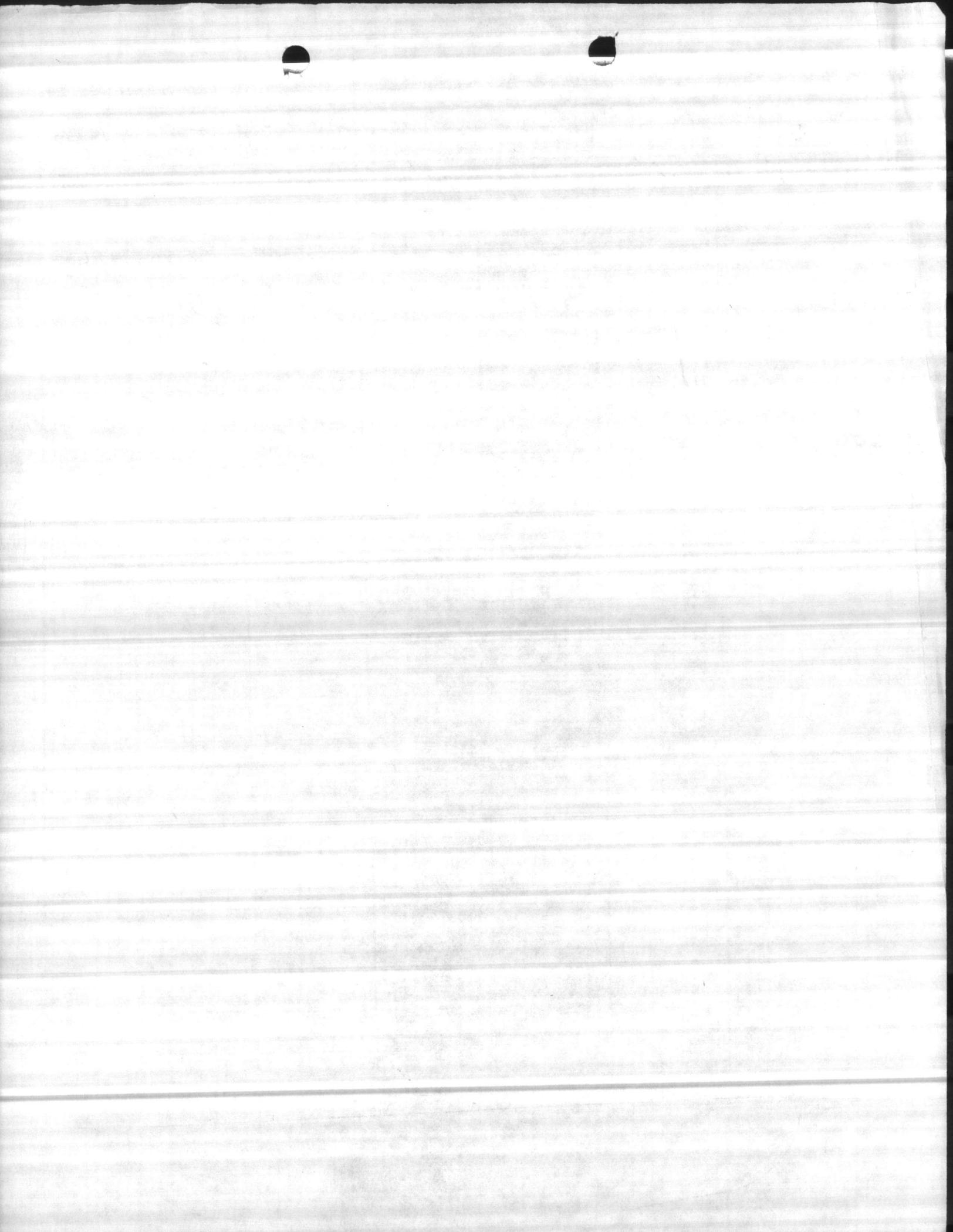
27 LB.

151

11:55

REMARKS:





WELL #

613

LENGTH OF AIR LINE

STATIC LEVEL

PUMPING LEVEL

DRAW DOWN

DISCHARGE PRESSURE

CAP. PER FOOT OF DRAW DOWN

TOTAL CAP.

DATE

MAR 1 77

REMARKS:

~~NO ATTEND~~

TOP SCREEN 60' FROM PUMP BASE

~~4-26-77 Pump pulled & Repaired~~

~~Static 18'~~

~~Depth -~~

~~Airline 62'~~

~~Installed Direct Reading Gauge~~

DEPTH OF

WELL:

150'

AIRLINE

ELEVATION:

+

DATE

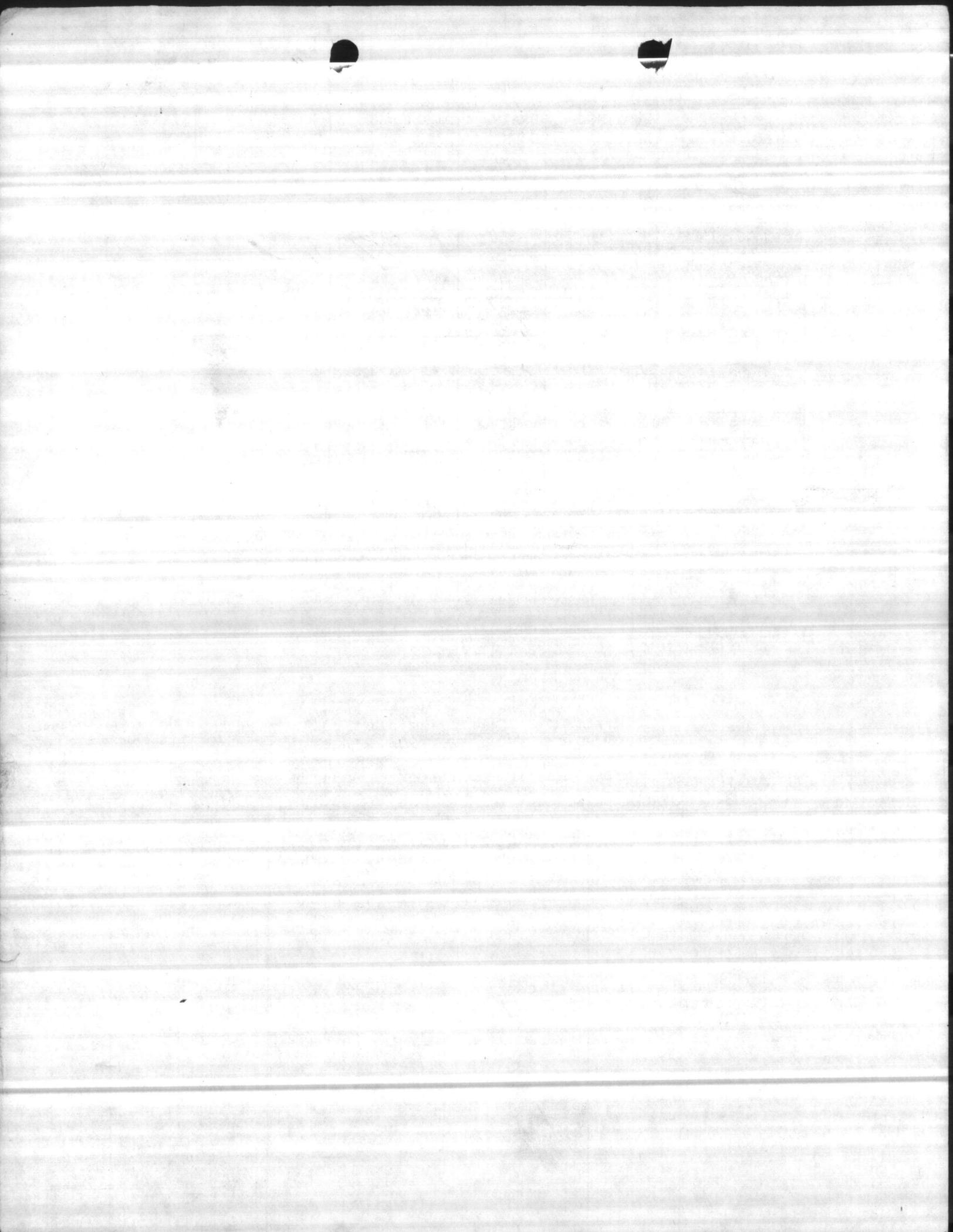
INSTALLED:

1942

Top section of the page

Middle section of the page

Bottom section of the page



Date	Well	G.P.M.	Line ft	Static guage ft	D.D. guage ft	Ft of D.D.	Shut off head ft
10-74	13	197	83.5	30	10.5	19.5	100+
"	13	250	70	30	5	25	-
"	13	225	76	30	8	22	-
"	"	320	54	30	2	28	-
10-19.	13	250	70	-	4	24	- Throttled
air line -			47 FT.				

**FOREMAN'S
LABOR DISTRIBUTION
CARD**

NAVMC 10041-SD

DISTRIBUTION

DATE

NAME

ACCOUNT NO.

WORK ORDER NO.

47.0

23.0

- 24.0

- 24

- 19

- 4

- 22

- 19

SIGNATURE OF FOREMAN

GPO: 1951-O-959671



Mid-South Pump Co.
 1555 Thrift Place / Memphis, TN 38116-3593
 WHOLESALE EXCLUSIVELY
 (901) 345-7204

PAGE 1	DATE NOV 11/07/90	SALES ORDER 06536
-----------	----------------------	----------------------

9.57.49 MEMPHIS

SOUTHERLAND SALES INC.
 208 BAYLEAF DR.
 RALEIGH NC 27615-0000

INDUSTRIAL SALES COMPANY
 BLUE CLAY RD.
 WILLINGTON NC 28402-0000
 LJV/PD

ACCOUNT # 14889	B/L NO. 12112	SHIPPED VIA AAA Cooper	DATE SHIPPED 11/8/90	TERM. 2%
C.O.D. X	CHARGE 0034	CUST. P.O. #/ORDERED BY OUR P.O. #	TERRITORY CODE 007	PACKED BY DR
C.D.		CHECKED BY		DRIVER

QTY. ORD	BO	QTY. SHIP	UM	PART NUMBER	DESCRIPTION	UNIT PRICE	NET AMO.
1		1	EA	92011709-65A2N	NBKCA1 W/L 6X5 NXSIN ROD CXS		
3		3	EA	92011014-ROD	BKCA ADD STG ROD CXS		
1		1	EA	07-1768-03	CPLG W/L 1-12LH X 2.5LG C1137		
					F (1) NBKCA4 W/L BOWL ASSY 6" X 5" X 1" S/N# 9004		
2		2	EA	29-1111-19	COL W/L 5 X 4'11-1/4" TBE 258W		
4		4	EA	29-1102-36	COL W/L 5 X 9'11-1/4" TBE 258W		
5		5	EA	29-1129-09	COLUMN CPLG 5"		
1		1	EA	LINESHAFT ASSY	CONSISTING OF: (SEE BELOW)		
1		1	EA	07-1000-XXLSSS	LINESHAFT 1" 416SS (SEE BELOW) 64 1/2" long		
1		1	EA	07-5356-02	CPLG O/L 1-12LH CS 2-7/8LG		
1		1	EA	9203-2010D	5X1X5FT BRG, SLV, & SHAFT		
4		4	EA	9203-1731D	5X1X10FT BRG, SLV, & SHAFT		
1		1	EA	9202-0600	TR6C DISCHARGE HD ASSY 3-1/8"		
1		1	EA	92019068	W/L PKG HSG KIT 1"W/ADPT. PLATE 3-1/8" FIT		
1		1	EA	29-0007-60	COL. BUSHING 6 X 5 BUTT		

well
613

Inv. Control

CONTINUED NEXT PAGE

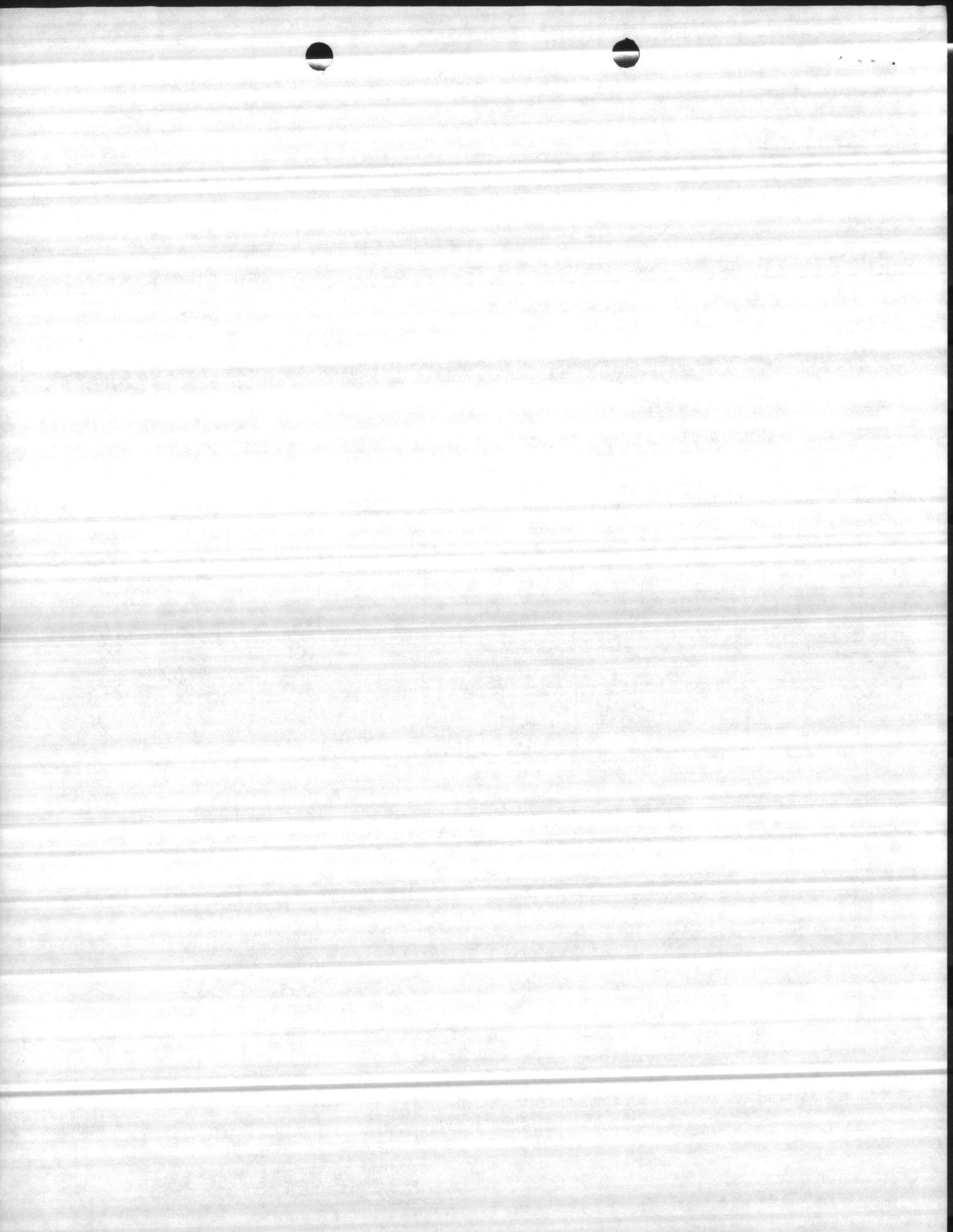
THIS COLUMN CHECKED DENOTES ITEM ON BACK ORDER

ST DUE ACCOUNTS SUBJECT TO A SERVICE CHARGE COMPUTED AT 1 1/2% PER MONTH (% ANNUM.) PROVIDED HOWEVER THAT IF APPLICABLE STATE LAW PROVIDES FOR A SER RATE, ONLY THE LESSER RATE SHALL APPLY.

SUB TOTAL		
FREIGHT		
CITY	%	TAX
COUNTY	%	TAX
STATE	%	TAX

THANK YOU PAY THIS AMOUNT

ALL CLAIMS AND RETURNED GOODS MUST BE ACCOMPANIED BY THIS BILL PREPAID AND MAY BE SUBJECT TO A 15% RESTOCKING CHARGE.





Mid South Pump Co.
 1555 Three Place / Memphis, TN 38116-3593
 WHOLESALE EXCLUSIVELY
 (901) 345-7204

PAGE
2

DATE
11/07/90

SALES ORDER
06536

9.57.49

SOUTHERLAND SALES INC.
 208 BAYLEAF DR.
 RALEIGH NC 27615-0000

INDUSTRIAL SALES COMPANY
 BLUE CLAY RD.
 WILLINGTON NC 28402-0000
 L.JW/PD

ACCOUNT # 14000 B/L NO. 12112 SHIPPED VIA AAA Cooper DATE SHIPPED 11/8/90 TERM 2%
 C.O.D. CHARGE CUST. P.O. #/ORDERED BY 0034 W/IN PED/ADD 11/9 OUR P.O. # TERRITORY CODE 007 PACKED BY [Signature] CHECKED BY DRIVER

QTY.	ORD	BO	QTY. SHIP	UM	PART NUMBER	DESCRIPTION	UNIT PRICE	NET AM.
1			1	EA	HEADSHAFT ASSY	CONSISTING OF:(SEE BELOW)		
1			1	EA	10-1400-XXCHS	COMB HD SHF 1" CS SEE BELOW		
1			1	EA	14-0441-01	1" X 50" MKY 17" TO 29" FBOTTOM HD.SHAFT NUT 1-12RH		
2			2	EA	14-1433-09	SCREW, RD. HD. #10-32X1-1/2		
2			2	EA	14-1670-01	GIB KEY 1/4 SQ X 2" LG. STL		
1			1	EA	22-0207-05	HEADSHAFT FLINGER 1"		
1			1	EA	29-1121-25NPT	COL O/L 6 X 10 3/4NPT 250W		
1			1	EA	29-1130-08NPT	COLUMN CPLG 6" 3/4NPT		
1			1	EA	30-0067-04	CONE STRAINER W/NIPPLE 6" GALV		
1			1	EA	QUOTE	TOTAL PRICE		
***** FREIGHT CHARGES TO FOLLOW *****								

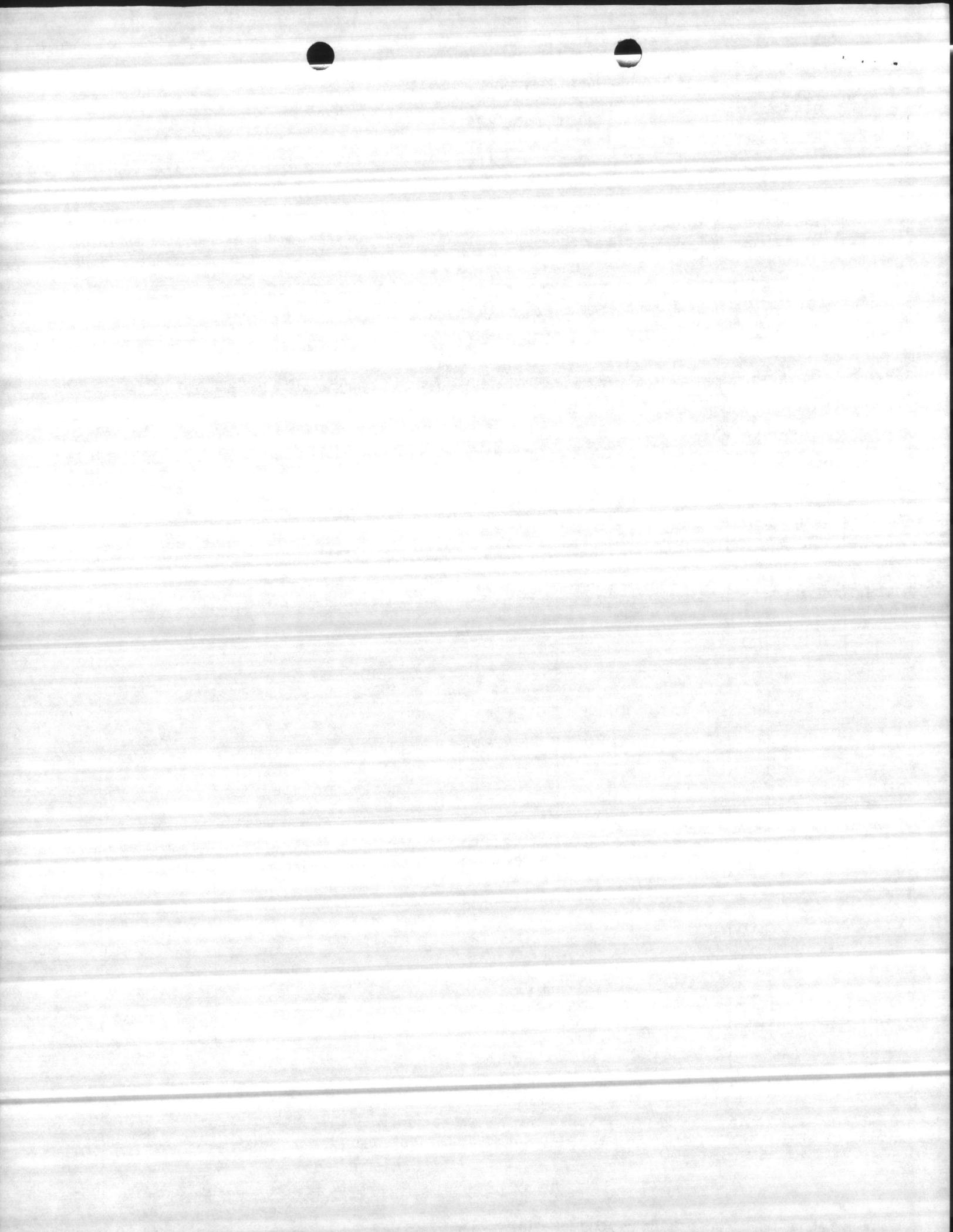
THIS COLUMN CHECKED DENOTES ITEM ON BACK ORDER

SUB TOTAL

PAST DUE ACCOUNTS SUBJECT TO A SERVICE CHARGE COMPUTED AT 1 1/2% PER MONTH (18% ANNUM.) PROVIDED HOWEVER THAT IF APPLICABLE STATE LAW PROVIDES FOR A LESSER RATE, ONLY THE LESSER RATE SHALL APPLY.

FREIGHT		
CITY	%	TAX
COUNTY	%	TAX
STATE	%	TAX

THANK YOU PAY THIS AMOUNT



1 LOWER PUMP UNIT:
JACUZZI CONSISTING OF: 1 EA.
4 STATE 8KS A TRIM FITTED 5 X 5 BOWL
ASSY. W/SEMI OPEN
IMPELLERS 4 EA. 5" X 10' X 1"
COLUMN 1 EA. 5" X 5' X 1" BOTTOM COLUMN
1 EA. 5" X 10' TAIL
SECTION 1 EA. 5" CONE STRAINER GALV.

— USMC
Call E-023
5/0-24386-0

1 UPPER PUMP UNIT:
JACUZZI CONSISTING OF: 1 EA.
L6 AB 10" BASE & DISCHARGE HEAD 5' THROX
6" FLG. 1 EA. 1" SS
HEAD SHAFT 1 EA. 5" X 5' TOP
COLUMN W/1" SHAFT

— USMC
Call E-025
5/0-24385-0

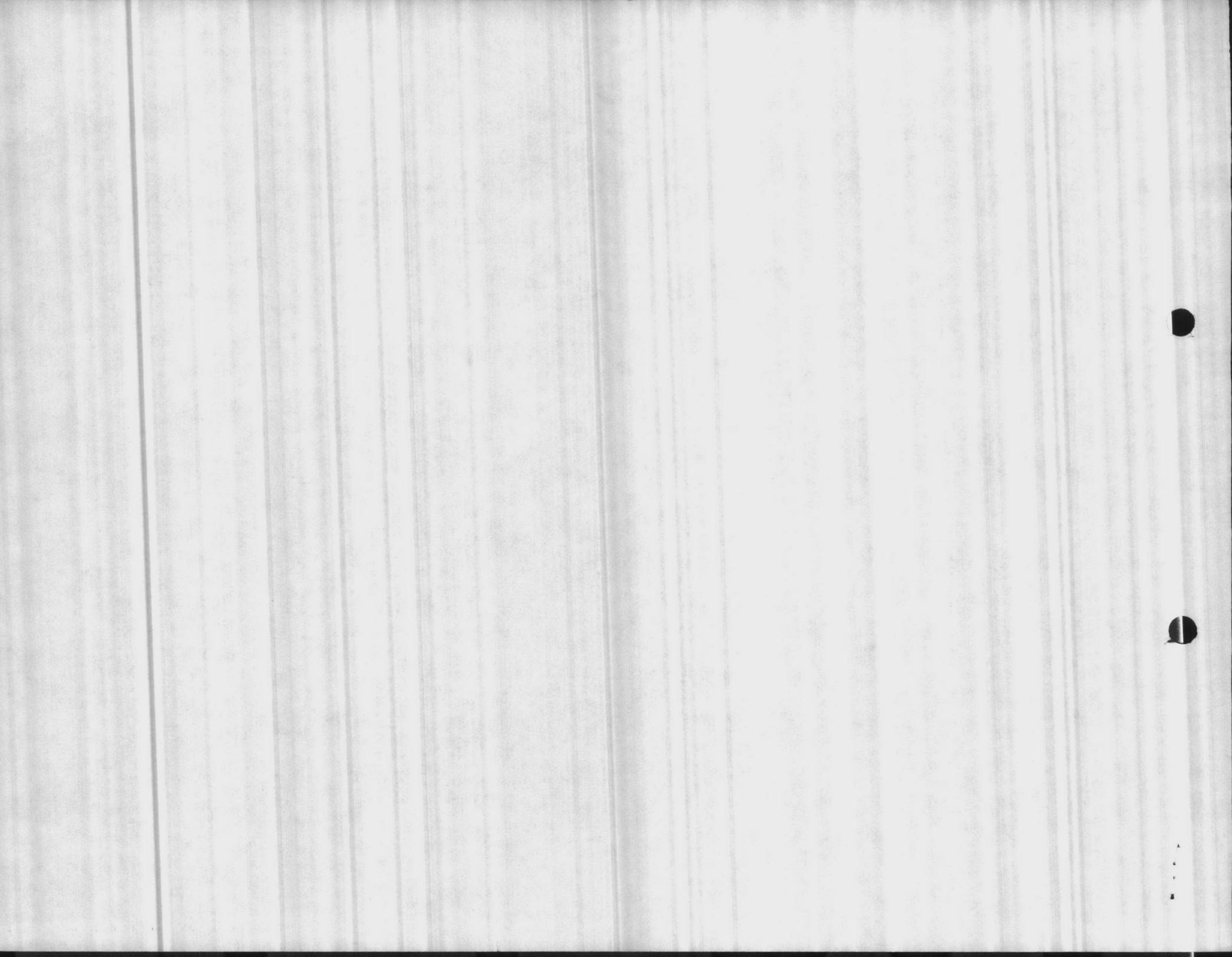
PURCHASE ORDER

No 7737

NOTICE
THIS ORDER NUMBER
MUST APPEAR ON ALL
INVOICES, ACKNOWLEDGMENTS,
SHIPPING PAPERS AND
PACKAGES.

INDUSTRIAL SALES COMPANY, INC.

By _____
GENE WELLS





Goulds Model DWT

3A.2B1

April 29, 1980
(Sup. 2/1/80)

M67001-81-M-5004

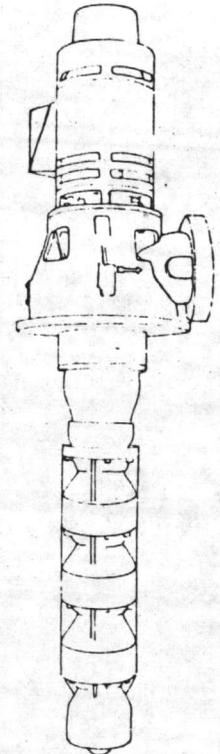
WELL NO 613

MCB, CAMP LEJEUNE, N.C.

8J10/4 STAGE
WATER LUBRICATED PUMP
SER. NO E47844-80

Bowl Assembly

DESCRIPTION	MATERIAL (A)	STANDARD
BOWLS— INTERMEDIATE	CAST IRON ENAMELED (B)	ASTM A48 CL. 30B
IMPELLERS	BRONZE (D)	ASTM B145-4A
LOCK COLLET (Impeller) (B)	MILD STEEL	AISI C1018/EQ
SHAFT	STAINLESS STEEL	AISI 416
COUPLING (Shaft)	MILD STEEL	AISI C1018/EQ
BEARINGS (Intermediate Bowl)	BRONZE OR RUBBER	ASTM B-144-3B
SUCTION BOWL	CAST IRON	ASTM A48 CL. 30B
BEARING (Suction Bowl)	BRONZE (C)	ASTM B-144-3B
DISCHARGE BOWL	CAST IRON	ASTM A48 CL. 30B
BEARING (Discharge Bowl)	BRONZE (C)	ASTM B-144-3B
BEARING (Tube Adapter)	BRONZE (C)	ASTM B-144-3B
CAP SCREWS	MILD STEEL	AISI C1018/EQ
BOLTING	MILD STEEL	AISI C1018/EQ
SAND COLLAR	BRONZE	ASTM B-62
COLUMN	MILD STEEL	ASTM 120



OIL OR WATER
LUBRICATED

Column Assembly OIL LUBRICATED

SAE 1045 shaft and couplings, bronze tube connector bearing, steel enclosing tube and threaded steel outer column and couplings. Rubber tube centering spider supplied at 40 ft. intervals.

WATER LUBRICATED

Over 20' TPL, SAE 1045 shaft with permanent hard chrome overlay at bearing journals. SAE 1045 shaft coupling, bronze bearing retainer, rubber bearing and threaded steel column. Up to 20' TPL, 416SS shafting throughout.

Discharge Head Assembly

OIL LUBRICATED

Cast Iron Discharge Head Casting ASTM A48-CL308*
Steel Column Nipple
Malleable Iron Lock Ring Nut
Cast Iron Tube Tension Plate
Cast Iron Tube Nut W/Bronze Brg.
416 Stainless Headshaft
Steel Adjusting Nut & Gib Key
Steel Tube Tension Nipple
Manual Lubricator Assembly (Electric Solenoid
Furnished if Electric Motor Purchased)

WATER LUBRICATED

Cast Iron Discharge Head Casting ASTM A48-CL30B*
Steel Column Nipple
Malleable Iron Lock Ring Nut
Cast Iron Packing Box
Bronze Packing Gland W/Studs & Nuts
416 Stainless Steel Head Shaft
Steel Adjusting Nut & Gib Key
No Prelube Tank and Fittings

* 14x24 1/2 is Fabricated Steel
Plate—ASTM 283 GR.D
Pipe—ASTM 120

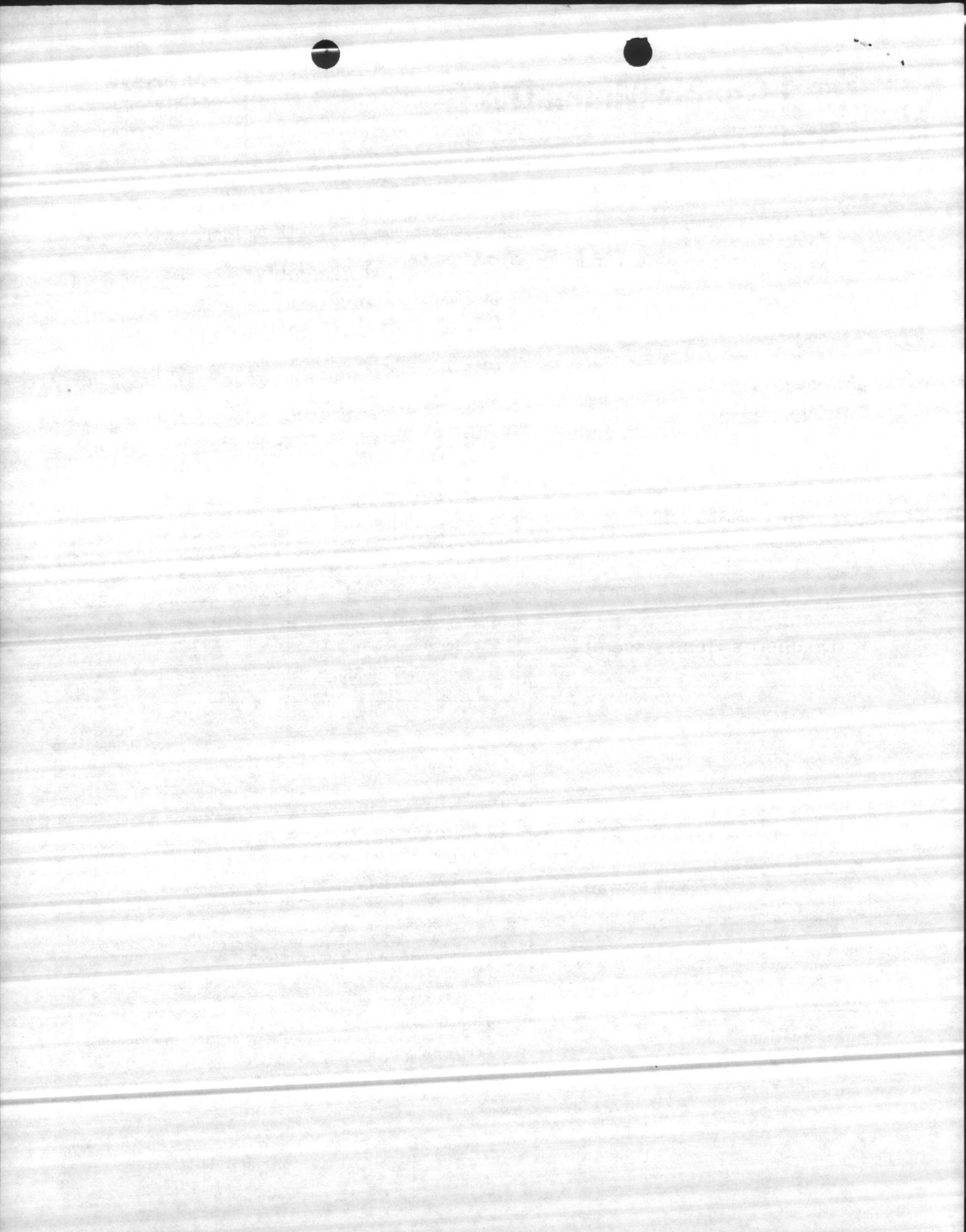
NOTE:

- (A) Alternate materials available. Contact nearest sales office or factory.
- (B) 18B and 18H have keyed impellers, bowls are lined with Heresite or equal.
- (C) Suction bowl and discharge bowl bearings not available in rubber.
- (D) 18B and 18H have iron impellers. See VIT bowl price page for bronze impellers.

ENGINEERING LIMITATIONS

1. Semi-open impellers are limited to 200 ft. setting since shaft stretch variation due to changing pumping conditions (varying water table and/or discharge pressure) will affect the critical impeller running clearance.
2. Semi-open impellers are limited to a maximum of 10 stages. If these impellers require keyed construction, only a maximum of 3 stages are allowed.
3. Semi-open impellers must not be used when more than one flow condition is to be met, or on pumps that operate in parallel, causing variable flow rates.
4. All applications over 500 ft. setting must be referred to the factory.
5. Prelubrication is recommended for water lubricated rubber bearings when distance between grade and static liquid level is more than 50 ft.
6. Non-reverse ratchets (NRR) are recommended on drivers for all applications where the setting is over 100 ft. For settings of 400 ft. or more the driver manufacturer must be consulted for availability of NRR.
7. For other than 50 and 60 cycle speeds refer to the factory to check on critical speeds. Otherwise bearing spacings indicated in notes 8 and 9 apply.
8. On all water lubricated pumps 5 ft. bearing spacing is required for operation over 2200 RPM. Speeds less than 2200 RPM requires 10 ft. bearing spacing.
9. All pumps with enclosed lineshaft construction are supplied with 5 ft. bearing spacings for all speeds.

TENCARVA MACHINERY CO.
P. O. BOX 3407
WILMINGTON, N. C. 28406
PHONE (919) 799-8800



Dimensions Mod DWT (VIT-CT)

All Dimensions are in inches.

2A.10X

December 1, 1976



Pump Data

Size 8JL0/4 STAGE

Serial No. E47844-80

DWT DISCHARGE HEADS

Disch. HD & Col. Size A	Motor BD	Discharge Head											Optional Sub Base			
		C	D	E'	F	G	H	J	L	Q	R	S	W	X	Y	Z
4	10	9	5	10	3/4	15	14	3/4	-2	3/4	6 3/4	5	18	16	3/4	12
6	12 16 1/2	12	6 3/4	12 3/4	3/4	23 3/4	21 3/4	3/4	20	3/4	8	4 1/2	24	22	3/4	14
8	12 16 1/2 20	13	7 3/4	14 3/4	1	23 3/4	21 3/4	3/4	20	1	10 3/4	5	24	22	3/4	16
10	16 1/2 20	14	9 3/4	16	1 1/4	25	22 3/4	3/4	21	1	12 3/4	6	26	23	3/4	17
12	24 1/2	16	10 3/4	20	1 1/2	32	30	3/4	28	1 1/4	14	4 1/4	34	31	1	24

¹Hollowshaft driver, one piece headshaft, no coupling above stuff. box.

²Round base plate.

³Unless TPL is specified, column lengths will be std. uncut 5, 10 or 20 ft. sections resulting in settings equal to multiple of these lengths, plus approx. 1 ft. for the adjusting nipple (i.e. 26 ft., 51 ft., 151 ft. etc.).

GEAR DATA

Gear Mfr. AMARILLO GEAR Co.

Model C-20 VHS VSS

Rotation Fig. # 1 Gear Ratio 3:4

H.P. 20 Pumpshaft RPM 1760

Thrust 2050 BD 10

GEAR APPROXIMATE DIMENSIONS—INCHES

Gear Mfr.	Gear Model	AG	XA	XB	Shaft Dia.	Key
	C-20	24 3/4	6 3/4	10 7/8	1 1/4	5/16 x 5/32

Motor Data

Motor Mfr. _____

H.P. 7 1/2 RPM 1760

Phase 3 Cycle 60 Volts 230/460

VHS VSS Thrust 1250

Frame 213TP Encl. WP-1 BD 10

ORDER Proposal No. M67001-81-M-5704

Customer MCB CAMP LEJEUNE, W. C.

Project _____

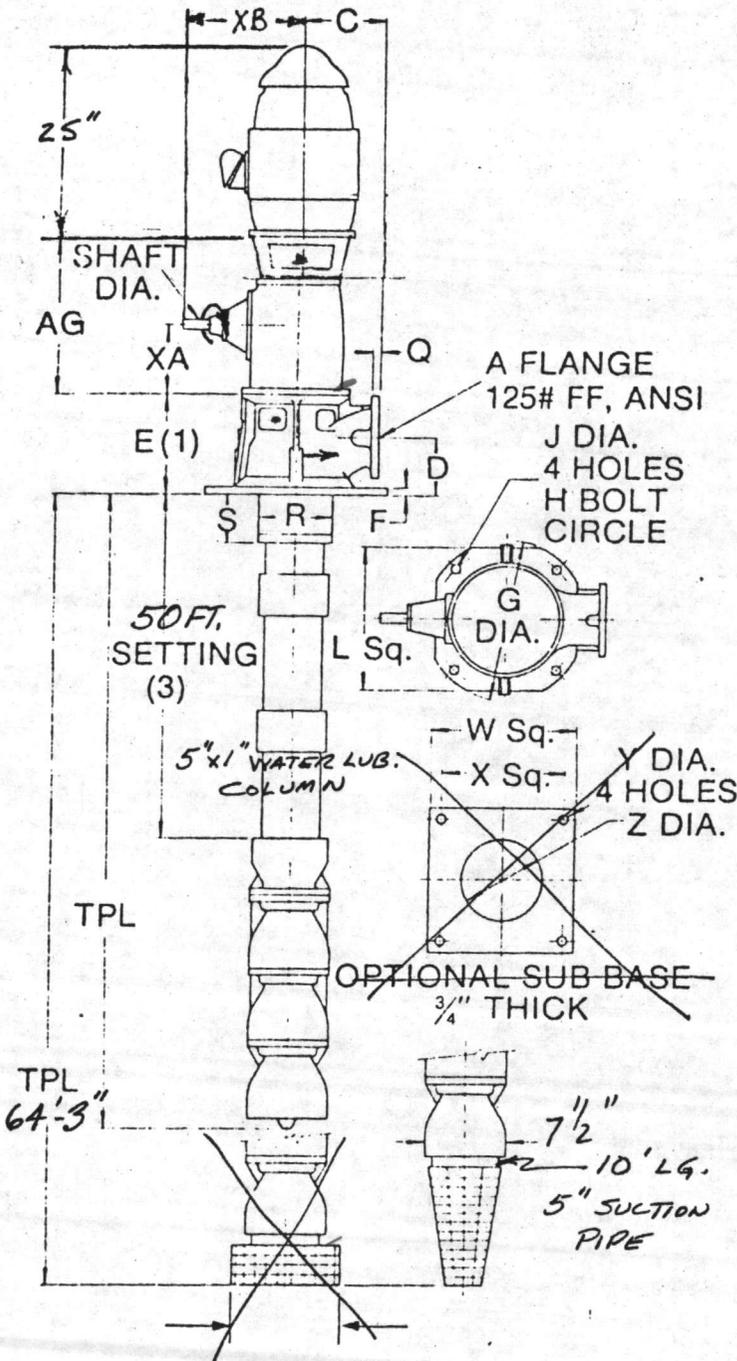
Inquiry No. _____

Item No. WELL No 613

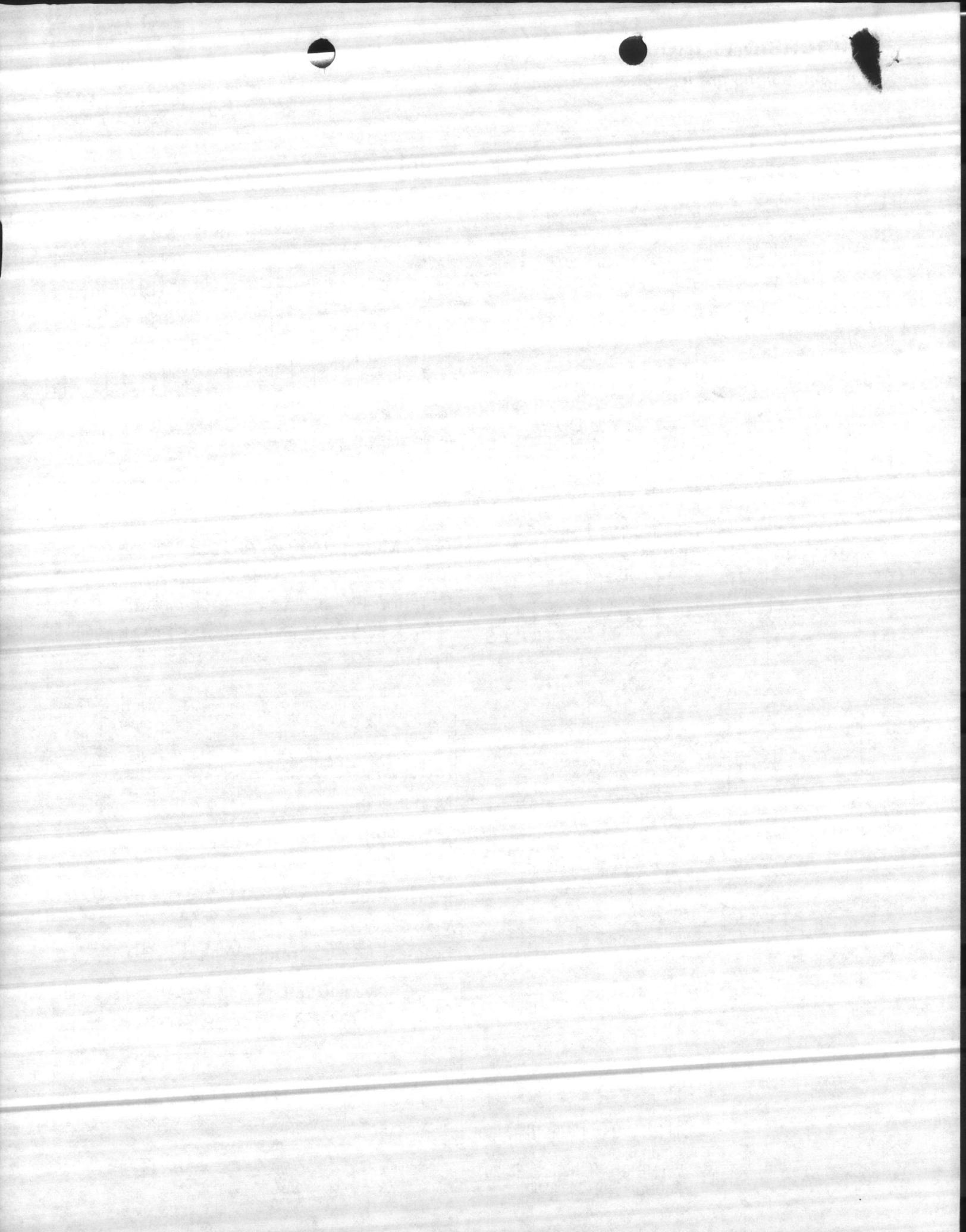
Service WELL WATER - 200 GPM @ 100' H

Submitted by RW Taylor VO-33507-72

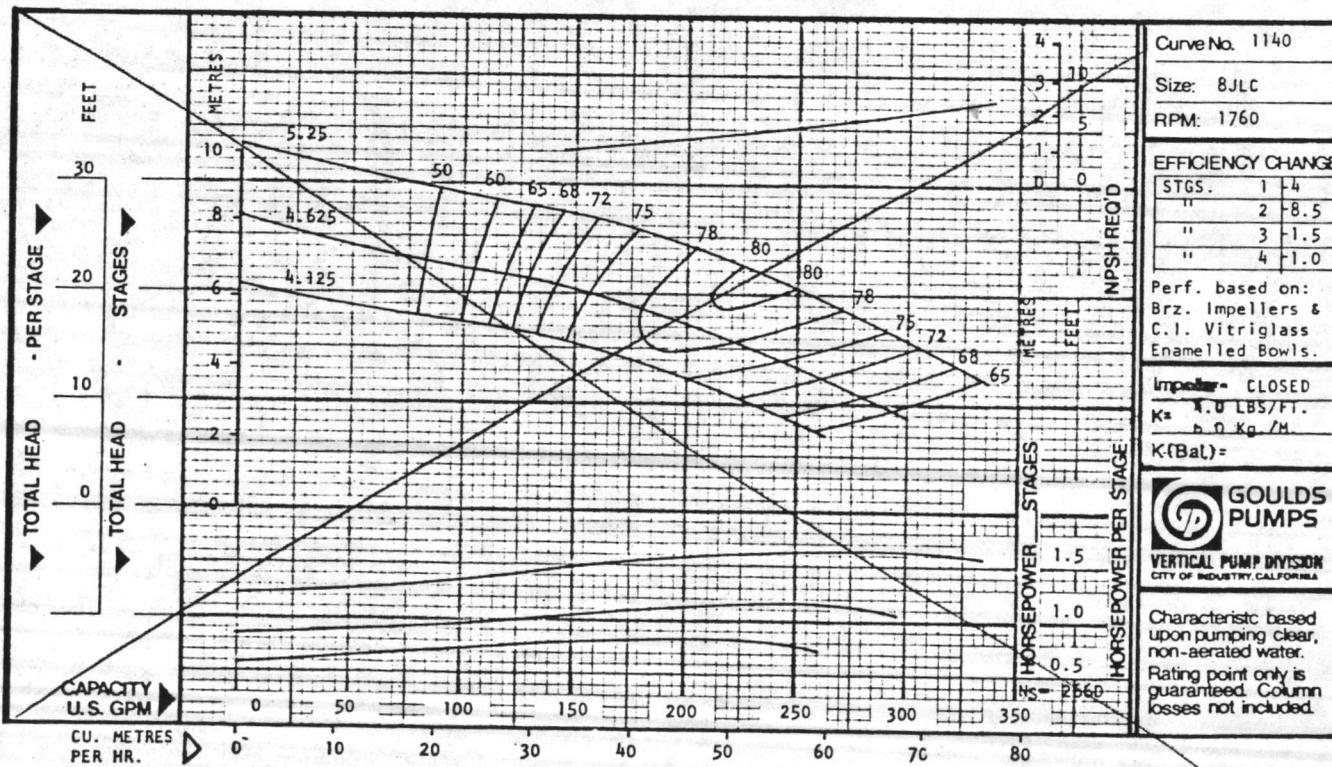
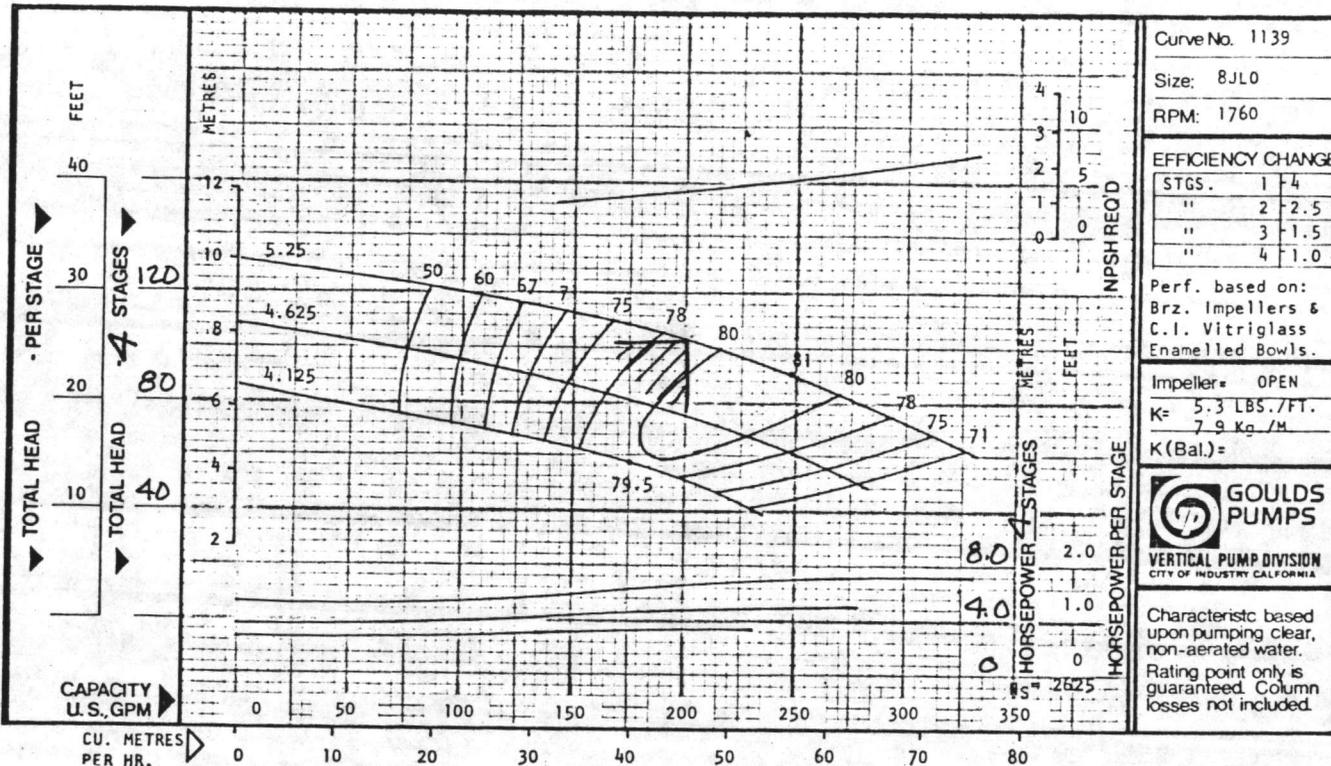
Date 12-16-80

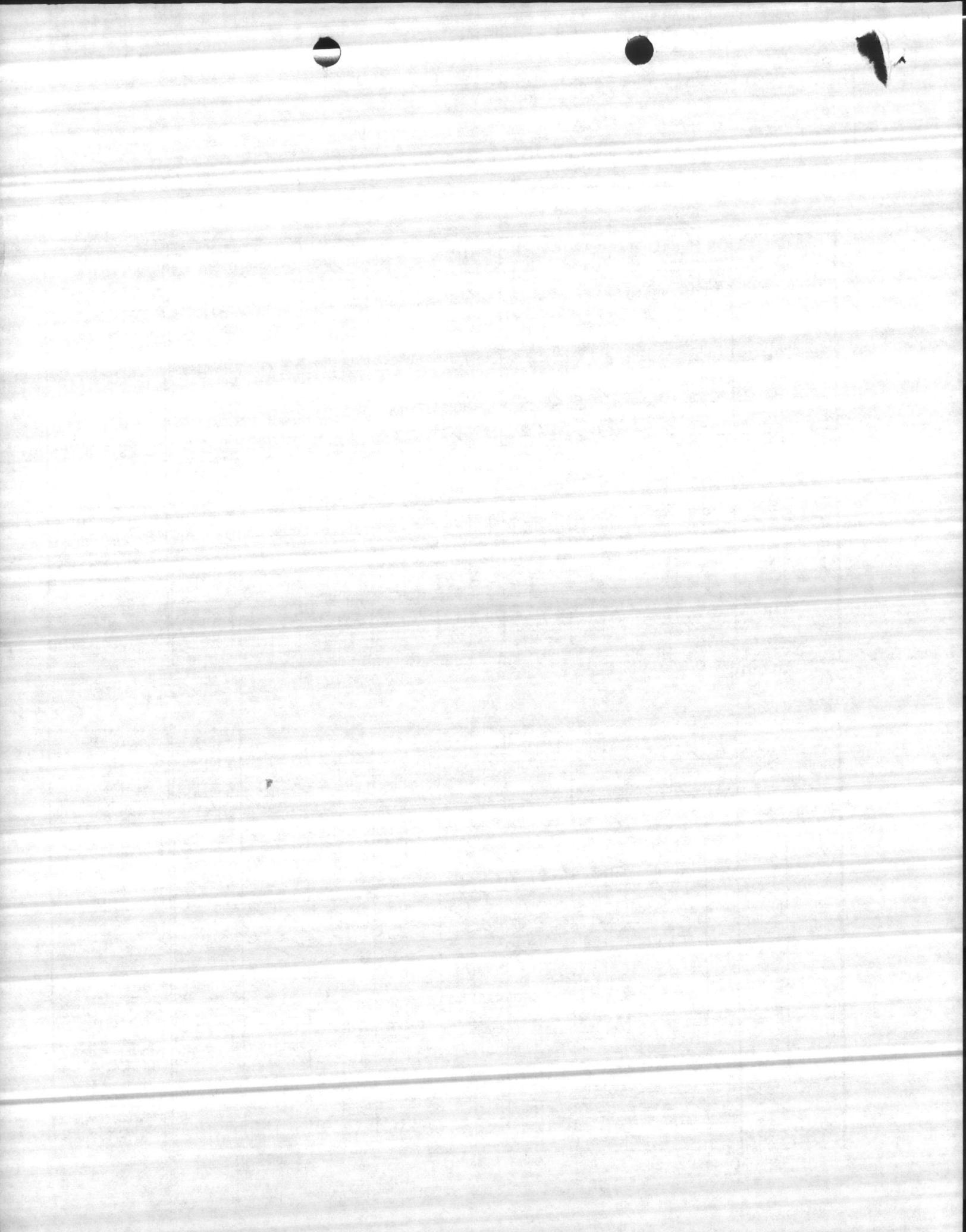


TENCARVA MACHINERY CO.
P. O. BOX 3407
WILMINGTON, N. C. 28406
PHONE (919) 799-8800



GOULDS PROPOSAL NO	GOULDS SO NO E41844-80	CUST INQUIRY NO M67001-81	CUSTOMER PO. NO. M-5704	PO DATE 12-15-80	ITEM NO	PAGE 5C17
CUSTOMER	MCB CAMP LEJEUNE, N.C.					DATE 5/25/77
PROJECT:	WELL No 613					SUPERSEDES 12/1/76
SERVICE:	WATER	GPM CAPACITY: 200	FT. TDH: 100'	% EFFICIENCY: 78%	RPM: 1760	





WELL # 13

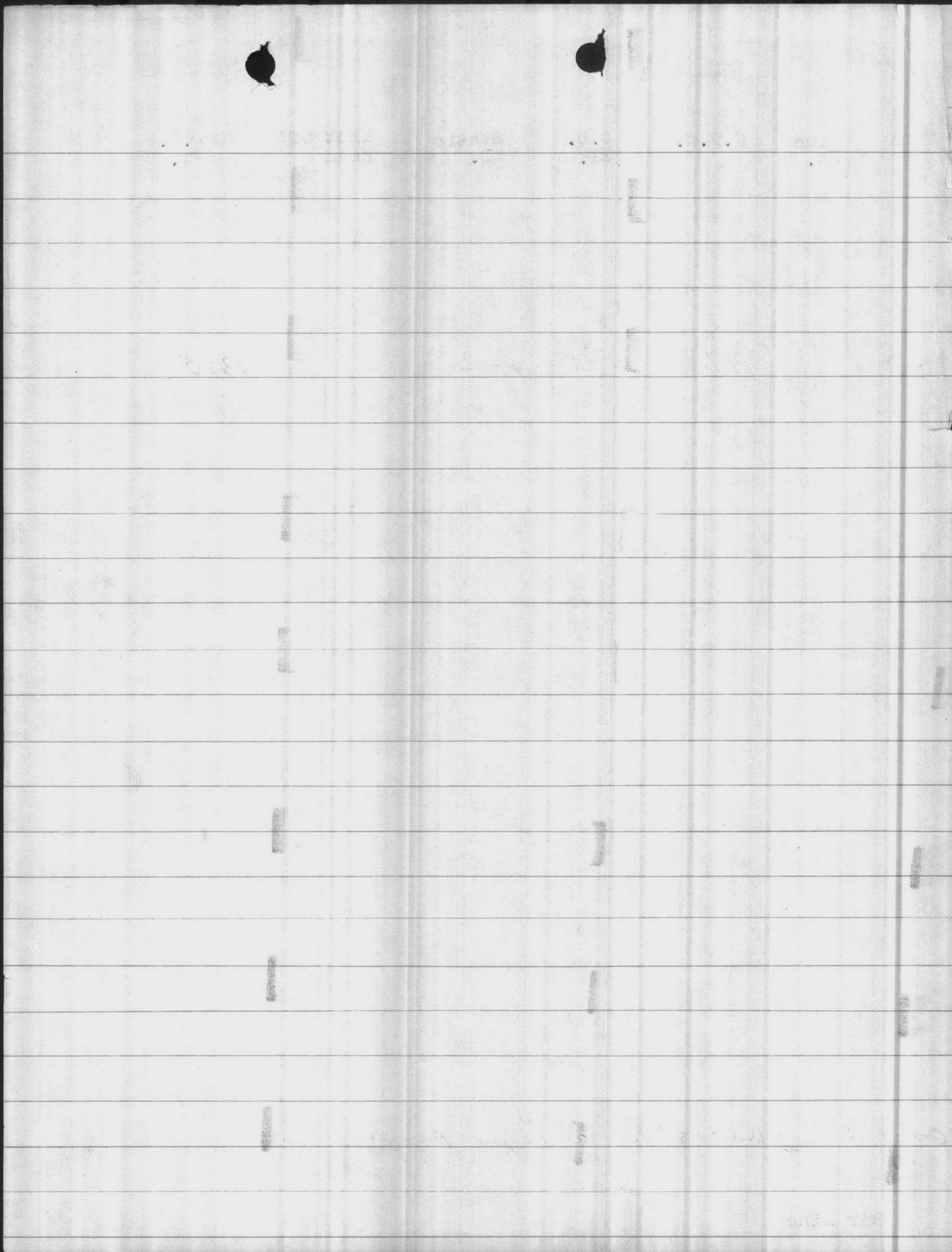
23 GA.

Date	Line Ft.	G.P.M.	D.D. El.	Static El.	Shut Off Head	D.D. Ft.
9-16-53	54	185	-10.7	+7.7	86	18.4
10-14-53		197	GAGE 10.5 FT			
11/8/66	60'	167	-19.8	28'		SEE WELL TEST
8/7/69	60'	197	-8.8	28'		SEE WELL
9-4-69		197	-8.8'	+4.2'		713.0'

as of 3/1/67 well 13 has a Lagne pump

47. new air line 12 FT FROM BASE TO WATER?

Air Line ~~58 FT.~~ - 33.3. L. EL.



PHYSICAL AND CHEMICAL ANALYSIS OF WATER						SAMPLE NO. WW 2-10
FROM: (Station or unit) U. S. Marine Corps Base, Camp Lejeune, North Carolina						DATE 1 March 1960
TO: (Name and location of laboratory) DPWD Sanitary Engineering Laboratory, Bldg. L-29, Naval Base, Norfolk 11, Virginia						
SAMPLE FROM (Location of sampling point) Hadnot Point Area Well No. 13, Bldg. No. 613						
COLLECTED BY Mr. R. L. Cox		DATE 3 Feb. 1960	HOUR —	SOURCE (Designate ground, surface, raw, treated) Ground		
REASON FOR EXAMINATION E.S.R., DPWD PROJECT NO. 09-2455			EXAMINATION REQUESTED BY Mr. R. L. Cox			
NOTE: All results reported in parts per million unless otherwise noted except for pH, temperature, and specific conductance. One liter of potable water is assumed to weigh one kilogram.						
I. LABORATORY FIELD ANALYSIS				III. ROUTINE LABORATORY ANALYSIS		
1. pH 7.65		TEMPERATURE		(CHECK ONE)		
		°F	°C 24.	<input checked="" type="checkbox"/> REQUESTED	<input type="checkbox"/> NOT REQUESTED	
ITEM		PPM		1. COLOR Apparent 30. True 3.		
2. CARBON DIOXIDE (CO ₂)				2. TURBIDITY settled 0.7 shaken 9.5		
3. DISSOLVED OXYGEN (O ₂)				3. ALKALINITY (CaCO ₃)		
4. HYDROGEN SULFIDE (H ₂ S)				P	MO	
5. CHLORINE DEMAND (Cl ₂)				0.0	142.	
FIELD ANALYSIS BY The temperature of the water at time of collection was 18°C.				4. TOTAL HARDNESS (CaCO ₃) (Ca+Mg) Hardness 147.3 145.4		
DATE OF ANALYSIS				5. NON-CARBONATE HARDNESS (CaCO ₃) (By Computation) 5.3		
II. SPECIAL LABORATORY ANALYSES				6. CARBONATE HARDNESS (CaCO ₃) (By Computation) 142.		
Check (X) individual items to be included in the Special Analyses. Request determination only of those substances suspected of being present in significant amounts.				7. TOTAL DISSOLVED SOLIDS —		
(X)	ITEM	PPM		8. SPECIFIC CONDUCTANCE (Micromhos) 265.		
	1. As			ITEM		PPM
	2. Se			9. CALCIUM (Ca)		52.7
	3. Pb			10. MAGNESIUM (Mg)		3.33
	4. B			11. SODIUM (Na) AND POTASSIUM (K) **		54
	5. Cu			12. HYDROXIDE (OH)* (as CaCO ₃)		0.0
	6. Zn			13. BICARBONATE (HCO ₃)* (as CaCO ₃)		142.
	7. Cr (Hexavalent)			14. CARBONATE (CO ₃)* (as CaCO ₃)		0.0
X	8. PO ₄	0.0		15. SULFATE (SO ₄)		2.4
	9. Cd			16. CHLORIDE (Cl)		10.
	10. CN			17. NITRATE (NO ₃)		—
	11. Phenolic Compounds (PPB)			18. IRON (Fe) TOTAL		0.75
	12. Others (Specify)			19. MAGANESE (Mn)		0.0
X	13. Aluminum	0.0		20. SILICA (SiO ₂)		14.
	14.			21. FLUORIDE (F)		0.0
	15.			*State whether determined or computed from P and MO alkalinity.		
	16.					
REMARKS (Such as unusual appearance, taste, odor, etc.) * Computed from P and MO alkalinity Well pump auxiliary powered by a gasoline engine. ** Computed Note: At the time of analysis, there was a small quantity of sediment in the bottom of the sample bottle. The well was in service at the time the sample was collected (discharge pressure = 32 psi).						
LABORATORY ANALYSIS BY George I. Earnest, Jr., Chemist						DATE OF ANALYSIS 29 Feb. 1960

LABORATORY REPORT

DATE

TIME

ANALYZED BY

LABORATORY

TEST NO.

REF

DESCRIPTION

1. SAMPLE NO.

2. LOCATION (EAST AND WEST)

3. DATE

4. TIME

5. METHOD

6. INSTRUMENT

7. OPERATOR

8. ANALYST

9. CHECKER

10. APPROVER

11. SIGNATURE

12. DATE

13. TIME

14. PLACE

15. COMMENTS

16. REMARKS

17. SIGNATURE

18. DATE

19. TIME

20. PLACE

21. COMMENTS

22. REMARKS

23. SIGNATURE

24. DATE

25. TIME

26. PLACE

27. COMMENTS

28. REMARKS

29. SIGNATURE

30. DATE

31. TIME

32. PLACE

33. COMMENTS

34. REMARKS

35. SIGNATURE

36. DATE

37. TIME

38. PLACE

39. COMMENTS

40. REMARKS

41. SIGNATURE

42. DATE

43. TIME

44. PLACE

45. COMMENTS

46. REMARKS

47. SIGNATURE

48. DATE

49. TIME

50. PLACE

51. COMMENTS

52. REMARKS

53. SIGNATURE

54. DATE

55. TIME

56. PLACE

57. COMMENTS

58. REMARKS

59. SIGNATURE

60. DATE

61. TIME

62. PLACE

63. COMMENTS

64. REMARKS

65. SIGNATURE

66. DATE

67. TIME

68. PLACE

69. COMMENTS

70. REMARKS

71. SIGNATURE

72. DATE

73. TIME

74. PLACE

75. COMMENTS

76. REMARKS

77. SIGNATURE

78. DATE

79. TIME

80. PLACE

81. COMMENTS

82. REMARKS

83. SIGNATURE

84. DATE

85. TIME

86. PLACE

87. COMMENTS

88. REMARKS

89. SIGNATURE

90. DATE

91. TIME

92. PLACE

93. COMMENTS

94. REMARKS

95. SIGNATURE

96. DATE

97. TIME

98. PLACE

99. COMMENTS

100. REMARKS

101. SIGNATURE

102. DATE

103. TIME

104. PLACE

105. COMMENTS

106. REMARKS

107. SIGNATURE

108. DATE

109. TIME

110. PLACE

111. COMMENTS

112. REMARKS

113. SIGNATURE

114. DATE

115. TIME

116. PLACE

117. COMMENTS

118. REMARKS

119. SIGNATURE

120. DATE

121. TIME

122. PLACE

123. COMMENTS

124. REMARKS

125. SIGNATURE

126. DATE

127. TIME

128. PLACE

129. COMMENTS

130. REMARKS

131. SIGNATURE

132. DATE

133. TIME

134. PLACE

135. COMMENTS

136. REMARKS

137. SIGNATURE

138. DATE

139. TIME

140. PLACE

141. COMMENTS

142. REMARKS

143. SIGNATURE

144. DATE

145. TIME

146. PLACE

147. COMMENTS

148. REMARKS

149. SIGNATURE

150. DATE

151. TIME

152. PLACE

153. COMMENTS

154. REMARKS

155. SIGNATURE

156. DATE

157. TIME

158. PLACE

159. COMMENTS

160. REMARKS

161. SIGNATURE

162. DATE

163. TIME

164. PLACE

165. COMMENTS

166. REMARKS

167. SIGNATURE

168. DATE

169. TIME

170. PLACE

171. COMMENTS

172. REMARKS

173. SIGNATURE

174. DATE

175. TIME

176. PLACE

177. COMMENTS

178. REMARKS

179. SIGNATURE

180. DATE

181. TIME

182. PLACE

183. COMMENTS

184. REMARKS

185. SIGNATURE

186. DATE

187. TIME

188. PLACE

189. COMMENTS

190. REMARKS

191. SIGNATURE

192. DATE

193. TIME

194. PLACE

195. COMMENTS

196. REMARKS

197. SIGNATURE

198. DATE

199. TIME

200. PLACE

201. COMMENTS

202. REMARKS

203. SIGNATURE

204. DATE

205. TIME

206. PLACE

207. COMMENTS

208. REMARKS

209. SIGNATURE

210. DATE

211. TIME

212. PLACE

213. COMMENTS

214. REMARKS

215. SIGNATURE

216. DATE

217. TIME

218. PLACE

219. COMMENTS

220. REMARKS

221. SIGNATURE

222. DATE

223. TIME

224. PLACE

225. COMMENTS

226. REMARKS

227. SIGNATURE

228. DATE

229. TIME

230. PLACE

231. COMMENTS

232. REMARKS

233. SIGNATURE

234. DATE

235. TIME

236. PLACE

237. COMMENTS

238. REMARKS

239. SIGNATURE

240. DATE

241. TIME

242. PLACE

243. COMMENTS

244. REMARKS

245. SIGNATURE

246. DATE

247. TIME

248. PLACE

249. COMMENTS

250. REMARKS

251. SIGNATURE

252. DATE

253. TIME

254. PLACE

255. COMMENTS

256. REMARKS

257. SIGNATURE

258. DATE

259. TIME

260. PLACE

261. COMMENTS

262. REMARKS

263. SIGNATURE

264. DATE

265. TIME

266. PLACE

267. COMMENTS

268. REMARKS

269. SIGNATURE

270. DATE

271. TIME

272. PLACE

273. COMMENTS

274. REMARKS

275. SIGNATURE

276. DATE

277. TIME

278. PLACE

279. COMMENTS

280. REMARKS

281. SIGNATURE

282. DATE

283. TIME

284. PLACE

285. COMMENTS

286. REMARKS

287. SIGNATURE

288. DATE

289. TIME

290. PLACE

291. COMMENTS

292. REMARKS

293. SIGNATURE

294. DATE

295. TIME

WATER ANALYSIS

By N. H. Kellam

Date 4/30/42

Sample from Well No. 13

Total Solids 204 PPM Dissolved Solids 170 PPM

Suspended Solids 30 PPM Volatile Solids _____ PPM

Phenol. Alk. as CaCO₃ 0 PPM Silica as SiO₂ 21 PPM

Total Alk. " " 140 " Ferrous Iron as Fe 0 "

Carbonates " " 0 " Total Iron as Fe 1.6 "

Bicarbonates " " 140 " Aluminum as Al. 3.3 "

Chlorides as Cl. 14 " Calcium as Ca. 58.5 "

Sulphates as SO₄ 12 " Magnesium as Mg. 4.1 "

Nitrites as NO₂ 0 " Sodium as Na. 2.7 "

Carbon Dioxide as CO₂ 8 "

pH 7.4 Soap Hardness as CaCO₃ 160 PPM

Odor Slight Turbidity 10

REMARKS _____

PHYSICAL AND CHEMICAL ANALYSIS OF WATER

SAMPLE NO.

FROM: (Station or unit)

Well 613

DATE

8-1-57

TO: (Name and location of laboratory)

SAMPLE FROM (Location of sampling point)

COLLECTED BY

Chadwick

DATE

8-1-57

HOUR

SOURCE (Designate ground, surface, raw, treated)

Raw

REASON FOR EXAMINATION

EXAMINATION REQUESTED BY

NOTE: All results reported in parts per million unless otherwise noted except for pH, temperature, and specific conductance. One liter of potable water is assumed to weigh one kilogram.

I. FIELD ANALYSIS			III. ROUTINE LABORATORY ANALYSIS	
1. pH	TEMPERATURE		(CHECK ONE)	
	°F	°C	REQUESTED	NOT REQUESTED
ITEM	PPM			
2. CARBON DIOXIDE (CO ₂)			1. COLOR	
3. DISSOLVED OXYGEN (O ₂)			2. TURBIDITY	
4. HYDROGEN SULFIDE (H ₂ S)			3. ALKALINITY (CaCO ₃)	
5. CHLORINE DEMAND (Cl ₂)			P	MO
FIELD ANALYSIS BY			0	133
DATE OF ANALYSIS			4. TOTAL HARDNESS (CaCO ₃)	
			136	
			5. NON-CARBONATE HARDNESS (CaCO ₃) (By Computation)	
			6. CARBONATE HARDNESS (CaCO ₃) (By Computation)	
			7. TOTAL DISSOLVED SOLIDS	
			8. SPECIFIC CONDUCTANCE (Micromhos)	
(X)	ITEM	PPM	ITEM	PPM
	1. As		9. CALCIUM (Ca)	
	2. Se		10. MAGNESIUM (Mg)	
	3. Pb		11. SODIUM (Na) AND POTASSIUM (K)	
	4. B		12. HYDROXIDE (OH) <i>CaCO₃</i>	0
	5. Cu		13. BICARBONATE (HCO₃) <i>CaCO₃</i>	133
	6. Zn		14. CARBONATE (CO₃) <i>CaCO₃</i>	0
	7. Cr (Hexavalent)		15. SULFATE (SO ₄)	
	8. PO		16. CHLORIDE (Cl)	8
	9. Cd		17. NITRATE (NO ₃)	
	10. CN		18. IRON (Fe) TOTAL	1.0
	11. Phenolic Compounds (PPB)		19. MAGANESE (Mn)	
	12. Others (Specify)		20. SILICA (SiO ₂)	
	13.		21. FLUORIDE (F)	
	14.		<i>*State whether determined or computed from P and MO alkalinity.</i>	
	15.			
	16.			

REMARKS (Such as unusual appearance, taste, odor, etc.)

LABORATORY ANALYSIS BY

Justice

DATE OF ANALYSIS

8-1-57

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF WATER DATA COORDINATION
INVENTORY OF HYDROLOGIC DATA STATIONS
QUALITY OF WATER

APPROVED.
Budget Bureau No. 42-R1485
Approval Expires June 30, 1968

1. AGENCY CODE MC	2. TYPE Q	3. LATITUDE ° ' " N 34 42 29	4. LONGITUDE ° ' " W 77 20 19	5.
----------------------	--------------	------------------------------------	-------------------------------------	----

6. AGENCY STATION NO. 613	7. STATION NAME HP20-613
------------------------------	-----------------------------

8. DRAINAGE BASIN CODE No. Letter 06 N	9. STATE CODE 32	10. COUNTY CODE 133	11. COUNTY NAME ONSLAW
--	---------------------	------------------------	---------------------------

12. PERIOD OF RECORD Began Discontinued 1942	Y <input type="checkbox"/> Continuous <input type="checkbox"/> Interruption Exceeds 1 Year	13.	14.
--	---	-----	-----

15. SITE <input type="checkbox"/> 101 Stream <input type="checkbox"/> 102 Canal	<input type="checkbox"/> 103 Lake <input type="checkbox"/> 104 Reservoir <input type="checkbox"/> 105 Estuary	<input type="checkbox"/> 106 Spring <input checked="" type="checkbox"/> 107 Well <input type="checkbox"/> 110 Other
---	---	---

16. FREQUENCY OF MEASUREMENT <input type="checkbox"/> 201 Continuous Recorder <input type="checkbox"/> 202 Telemetered	<input type="checkbox"/> 203 Daily <input type="checkbox"/> 204 Weekly <input type="checkbox"/> 205 Monthly <input type="checkbox"/> 206 Quarterly	<input type="checkbox"/> 207 Seasonal <input type="checkbox"/> 208 Annual <input type="checkbox"/> 209 Other Periodic <input checked="" type="checkbox"/> 210 Occasional
--	---	---

17. TYPES OF DATA AVAILABLE		
<i>Physical</i> <input type="checkbox"/> 311 Temperature <input type="checkbox"/> 312 Specific Conductance <input type="checkbox"/> 313 Turbidity <input type="checkbox"/> 314 Color <input type="checkbox"/> 315 Odor <input type="checkbox"/> 316 Radioactivity <input type="checkbox"/> 317 pH (field) <input checked="" type="checkbox"/> 318 pH (lab) <input type="checkbox"/> 319 Eh <input type="checkbox"/> 320 Other	<i>Chemical</i> <input type="checkbox"/> 331 Dissolved solids <input checked="" type="checkbox"/> 332 Chlorides Only <input type="checkbox"/> 333 Nutrients (Nitrogen and phosphorus compounds) <input type="checkbox"/> 334 Common ions <input checked="" type="checkbox"/> 335 Hardness <input type="checkbox"/> 336 Radiochemical <input type="checkbox"/> 337 Dissolved oxygen <input type="checkbox"/> 338 Other Gases <input type="checkbox"/> 339 Other	<i>Organic</i> <input type="checkbox"/> 351 Pesticides (insecticides, herbicides, etc.) <input type="checkbox"/> 352 Synthetic detergents <input type="checkbox"/> 353 Other <i>Biologic</i> <input type="checkbox"/> 361 Coliforms <input type="checkbox"/> 362 Other Micro-organisms <input type="checkbox"/> 363 BOD <input type="checkbox"/> 364 Other <i>Sediment</i> <input type="checkbox"/> 371 Concentration <input type="checkbox"/> 372 Particle size <input type="checkbox"/> 373 Other

18. SUPPLEMENTARY DATA FOR SITE		
<input type="checkbox"/> 421 Surface Water Station <input type="checkbox"/> 422 Ground Water Station	<input type="checkbox"/> 423 Water Stage or Level <input checked="" type="checkbox"/> 424 Water discharge	<input type="checkbox"/> 425 Time of Travel <input type="checkbox"/> 426 Drainage Area

19. STORAGE OF DATA		
<input type="checkbox"/> 501 Periodic Report <input type="checkbox"/> 502 Areal Report	<input checked="" type="checkbox"/> 503 Not Published <input checked="" type="checkbox"/> 504 Data on Punchcard	<input type="checkbox"/> 505 Data on Magnetic Tape <input type="checkbox"/> 506 Other

20. OFFICE AT WHICH DATA AVAILABLE		
Office <u>BASE MAINTENANCE DEPARTMENT, UTILITIES DIVISION</u>		
Street No. <u>MARINE CORPS BASE</u>		City Code
City, State, Zip <u>CAMP LEJUNE, N. C. 28542</u>		<u>0735</u>

21. OFFICE COMPLETING FORM		
<u>BASE MAINTENANCE DEPARTMENT</u>		

22. COMPILER'S NAME <u>F. F. TEN, JR.</u>	23. DATE Month Year <u>SEPT. 1966</u>
--	---



11/11/11

11/11/11

Marine Barracks
New River, N. C.
May 15, 1942

Wells: Permanent Water Supply
Regimental Area

By Layne Atlantic Company

Report on Well No. 13

Location: 65' west of Main Access Road. 5,000' north of
Wallace Creek Bridge as shown on M.B. Drawing
No. 521.

Date Drilled: May 1942

Status: A 23" hole cased with 18" I.D. steel casing to a
depth of 30' below surface. The annular space around
this was filled with cement grout. A 17 $\frac{1}{2}$ " hole
drilled to a total depth of 170'.

Drilling Equipment: Rotary rig and bits

Log of Formation:	0 to 3'6"	Clay
	3'6" to 26'	Yellow sand
	26' to 32'	Clay
	32' to 46'	Coquina rock
	46' to 54'	Soft rock with fossils
	54' to 60'	Fine sand and shells
	60' to 67'	Soft coquina rock
	67' to 73'	Fine sand
	73' to 78'	Soft shell and fine sand
	78' to 90'	Very fine sand
	90' to 97'	Soft rock
	97' to 110'	Muck and shells
	110' to 122'	Hard rock
	122' to 140'	Shell rock and sand
	140' to 153'	Fine sand and shells
	153' to 163'	Extra hard rock
	163' to 167'	Soft rock and sand
	167' to 170'	Extra hard rock.

Remarks: Because of the presence of fine sand in the rock
formation, it was necessary to construct a gravel
wall well.

Esleach
Fidelity Union S...

Gravel Wall Construction: An 8" steel pipe with sections of silician bronze shutter screen was lowered into the 17 $\frac{1}{2}$ " hole to a depth of 150'. The anular space around this was filled with a special 1/4" washed gravel.

Log of	0	to	60'	8" steel pipe
Screen Setting:	60'	to	70'	8" Bronze screen
	70'	to	90'	8" steel pipe
	90'	to	95'	8" bronze screen
	95'	to	115'	8" steel pipe
	115'	to	120'	8" bronze screen
	120'	to	130'	8" steel pipe
	130'	to	135'	8" bronze screen
	135'	to	145'	8" steel pipe
	145'	to	150'	8" bronze screen

The bottom of the screen was filled with a cement plug. The steel pipe was of threaded joints and the screen was welded.

Static Level: 12' below surface

Pumping: Start well pumps 320 GPM with 42.5' D.D. from static level. After washing pumps 300 GPM with 32.2 D.D. after several hours pumps 400 GPM with 40.2 D.D. Final reading after 20 hours pumping constant flow of 310 GPM with 28.7' D.D. from static level. Recovers from 28.7' to 4.6' in 3 minutes. Recovers to static in 5 minutes.

See separate report for chemical analysis.

58' water level

N. H. Kellam
Asst. Chem. Engineer

3000

Report on Soil Tests

The soil tests were conducted on the 15th of May 1950. The results are given in the following table.

Soil Sample	Moisture (%)	Organic Matter (%)	pH
1. Topsoil	12.5	2.1	6.5
2. Subsoil	10.8	1.5	6.8
3. Surface	15.2	3.4	6.2
4. Subsoil	11.9	1.8	6.6
5. Topsoil	13.7	2.5	6.4
6. Subsoil	10.3	1.4	6.9
7. Surface	14.6	3.1	6.3
8. Subsoil	11.5	1.7	6.7
9. Topsoil	13.1	2.3	6.5
10. Subsoil	10.6	1.6	6.8

The results of the tests show that the soil is generally of a medium to heavy texture and is slightly acidic.

It is recommended that the soil should be treated with a good dressing of fertilizer.

The soil is generally of a medium to heavy texture and is slightly acidic. It is recommended that the soil should be treated with a good dressing of fertilizer.

W. H. Smith
Agricultural Chemist

W E L L D A T A

Well No. 13

SPECIFICATIONS

Pump Base Elevation	23.2
Ground Elevation	21.2
Static Elevation	9.2
Maximum allowed Drawdown	-14.1
Total Discharge	250 G.P.M.
Total Head	90 Feet

TEST

300 G.P.M.	19 $\frac{1}{2}$ "	Pressure	Drawdown	-15.3	- 10.4'
280 G.P.M.	22 $\frac{1}{2}$ "	Pressure	Drawdown	-12.6	- 11.3
265 G.P.M.	23 $\frac{1}{2}$ "	Pressure	Drawdown	-11.7	- 11.4
250 G.P.M.	25 $\frac{1}{2}$ "	Pressure	Drawdown	-10.3	- 12.4
235 G.P.M.	25 $\frac{1}{2}$ "	Pressure	Drawdown	-8.9	

Recovers to elevation + 8.5 in three (3) minutes.

Elev DR gauge 24.7
Air line 63.5'

1.12
1.13
1.14
1.15
1.16
1.17
1.18
1.19
1.20

1.21
1.22
1.23
1.24
1.25
1.26
1.27
1.28
1.29
1.30

1.31	1.32	1.33	1.34	1.35	1.36	1.37	1.38	1.39	1.40
1.41	1.42	1.43	1.44	1.45	1.46	1.47	1.48	1.49	1.50
1.51	1.52	1.53	1.54	1.55	1.56	1.57	1.58	1.59	1.60
1.61	1.62	1.63	1.64	1.65	1.66	1.67	1.68	1.69	1.70

1.71 (2) 1.72 (2) 1.73 (2) 1.74 (2) 1.75 (2) 1.76 (2) 1.77 (2) 1.78 (2) 1.79 (2) 1.80 (2)

1.81 1.82 1.83 1.84 1.85 1.86 1.87 1.88 1.89 1.90

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